FEBRUARY, MDCCCLIII.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY

AND

JOURNAL FOR RECORDING FACTS & ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

Nos. CXXIII. & CXXIV.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price TWO SHILLINGS.

E. NEWMAN, 9, DEVONSHIRE STREET

The Osprey (Falco Haliætus) *in Surrey.*—One of these rare birds was shot on the 18th of October in the grounds of Milford House, near Godalming. It had just captured a fish of nearly a pound weight. Another was seen in the neighbourhood about the same time.—*G. J. Webb; Brasenose College, Oxford, November* 15, 1852.

Occurrence of the Long-eared Owl (Strix Otus) *and Fire-crested Regulus* (Regulus ignicapillus) *near Penzance.* — A specimen of the first-mentioned species occurred a day or two since at Trevayler, and proved to be a male in fine plumage, with the tufts well developed. The fire-crested Regulus appears to visit us in greater or less numbers about this time every year; one was observed near Marazion a few days since by Mr. Vingoe.—*Edward Hearle Rodd; Penzance, December* 8, 1852.

Occurrence of the Black Redstart (Sylvia Tithys) *at Bembridge.* — On the 9th of December last I met with a single individual of this species, on the sea-shore here, in company with several rock pipits. This is quite confirmatory of the bird being an accidental winter visitor to our southern coast.—*A. G. More; Bembridge, Isle of Wight, January* 10, 1853.

Note on the late Occurrence of the Blackcap Warbler.—On the 22nd of December a gentleman in this county, while walking in his garden, knocked down with his stick a male blackcap warbler, in full plumage: the bird was fat, but the stomach empty. —*J. H. Gurney; Easton, Norfolk, January* 4, 1853.

Note on the Cole Titmouse (Parus ater). — This summer I have had many clumps of sun-flowers about the place, which have of late been a great attraction to several species of titmouse, and thus a source of much pleasure to myself. The cole titmouse especially, which I had seen little of until I came here, has been so abundant that I have seen two or three at a time digging away with their bills at the head of the same flower, and now that they have left them like an empty honey-comb, they are in numbers under the beech-trees, feeding on the fallen mast.—*William C. Hewitson; Oatlands, November* 21, 1852.

Supposed Occurrence of the Rufous Swallow (Hirundo rufula) *near Penzance.*—A circumstance was mentioned to me yesterday, which may be regarded as interesting and worth a place in the 'Zoologist,' as coming from a naturalist whose general accuracy may be depended upon implicitly. Mr. Vingoe, of this place, whose name has before frequently appeared in your pages, introduced the subject by remarking that he had a strong suspicion that he had discovered, in the later months of the past summer, the rufous swallow. His attention was for some time directed to an individual amongst several others, that exhibited an uniform copper colour over the whole of the under parts. At the time he had not seen a figure of the bird in Gould's work, but having occasion afterwards to refer to one of the numbers, he accidentally saw the figure of the rufous swallow, and at once recognized it as the new bird he had seen. At a subsequent period I may have to refer to this subject again, and it will then be probably when the bird is captured, and the authority of Mr. Vingoe supported by the fact.—*Edward Hearle Rodd; Penzance, November* 27, 1852.

Swallows in November. — I have never before this year had the pleasure of seeing swallows in November, and had therefore, with the last days of October, most reluctantly wished them farewell, not expecting to see them again before the sunny days of spring; they are however yet here, and to-day (November 21) I have had four house-martins about the house. On the 18th I saw two chimney-swallows at Esher.—*W. C. Hewitson; Oatlands, November* 21, 1852.

BRITISH MUSEUM

The Chukar Partridge, (Caccabis chukar). — "About the same time [the middle of March, 1848], I was invited by the Thannadar of Iskardo to be present at a hunting party, which he had arranged for the capture of the *chakor*, or painted partridge, by surrounding a spot of ground, in which these birds are numerous, with a ring of men, who, approaching from all directions, gradually form a dense circle of perhaps a hundred yards in diameter. When the partridges are disturbed by a horseman in this inclosure, they naturally fly towards the living wall by which they are surrounded. Loud shouts and the beating of drums and waving of caps and cloaks, turn them back, and they are driven from side to side, till at last, exhausted with fatigue, and stupid from the noise and confusion, they sink to the ground, and allow themselves to be caught by hand. The scene was a very striking one. The spot selected was a deep dell, full of rocks, but without trees. The sport, however, did not seem so successful as usual, six or eight birds only being captured. The chakor is an extremely common bird in all parts of the valley of the Indus, and indeed throughout Tibet. In winter, when the hills are covered with snow, they are to be found in great numbers close to the river, even in the immediate neighbourhood of the villages; and in general, when approached, they lie very close among the crevices of the stones." — *From Dr. Thomas Thomson's 'Western Himalaya and Tibet,' p.* 261.

Woodcock breeding in England. — My number of the 'Zoologist' for September last having been mislaid, it was only a day or two since that I saw articles in it respecting the "Breeding of the Woodcock in England." As the fact seems to be considered of *rare* occurrence, I think it may be acceptable to your correspondents to re-record, that during a residence of eight years in the neighbourhood of Usk, in Monmouthshire, I knew the woodcock to breed annually in several woods not far from my house. On the 1st of May, 1845, a young bird, nearly full grown, was brought to me by one of my men, proving how early it must have been hatched. I believe this bird to remain with us in every suitable situation for the purpose of breeding; but large, quiet, and deep woods are indispensably necessary to a bird of such shy and retired habits.—*William Knapp; Harts Cottage, Alveston, Bristol, December* 10, 1852.

Unusually large Woodcock.—A woodcock was sent to me a short time since, killed at Trengwainton, near this place, which, from its size and weight, I was induced to place in the scales. It proved to weigh exactly 16 oz., which is a fact perhaps worth communicating.—*Edward Hearle Rodd; Penzance, December* 22, 1852.

Note on the supposed Abundance of Woodcocks (Scolopax rusticola) *in Norfolk.*— The great number of woodcocks which have been met with this season at some places in Norfolk, is perhaps worthy of notice, and the more so as it would be, I think, desirable to ascertain, whether a corresponding increase has been observed in other parts of the kingdom. But at the same time I have heard of so many instances in which the number seen or killed during a day's shooting has fallen far short of what was expected, that I hardly think now, though at first I was of the contrary opinion, that the country *generally* has been this season visited by a greater number than usual. I could cite many instances, but as they would possess little beyond local interest, I will confine myself to some extreme examples. In the first week in December, 30 and 33 were respectively killed, on two successive days, at Melton Constable near Holt; and on the next day, the same shooting party bagged 93 in the Great Wood, in the adjoining parish of Swanton Novers. I have been informed on good authority, that no such number as this last has been seen there for twenty years; and further, that at least 110 might have been killed if the other game had been disregarded; but this place is supposed to be the best ground for woodcocks in Norfolk. Felbrigg near Cromer, and Holkham also, have a high reputation for the number of woodcocks usually killed there, and this year their character has not forsaken them; for at the former place 27, 30, 15, and 21 respectively were killed on four days in the second and third weeks of December; and at the latter 29 in one day, about the same time. Now, on the other hand, Fakenham Wood, considered the most favourable locality in this part of Suffolk for these birds, was beaten at the end of October, with a slaughter of *three* only, while often 15 or 20, and on more than one occasion 30, have been killed there in years by no means extraordinary. Nor can it, I think, be urged that this shortcoming was only in consequence of the wood having been shot through early in the season, for I was told by an eye-witness that when the wood was drawn by the hounds only a week ago, he did not see a single bird, although he was on the look-out all the time. Here, at Elveden, the number of woodcocks killed has certainly been above the annual average for the preceding ten years, but at the same time it has fallen still shorter of the returns for the seasons ending in 1850 and 1844. I should observe that the places in Norfolk that I have mentioned above as having been frequented this season by a great number of these birds, are at no great distance from the sea, and the same may be said of the other localities to which report has assigned a like visitation; it may therefore be that owing to so much of the country being under water, to the very mild weather, or to some other such reason, the woodcocks have been either constrained to haunt the places at which they first landed, or else have had no inducement, in the shape of scarcity of food, to quit them. These suggestions, and the true solution, I leave to the readers of the 'Zoologist.'—*Alfred Newton; Elveden Hall, January* 7, 1853.

Occurrence of the Little Auk (Uria Alle) *in the City of Durham.*—The late gales have brought to our coast many rare northern visitors, but I think the circumstance of the little auk (*Uria Alle*) being taken so far inland as the heart of the city of Durham, is almost unprecedented. A fine specimen was discovered by some workmen on Friday fortnight, the 26th ult., in the garden of E. Shipperdson, Esq., in the South Bailey, not far from the banks of the river Wear. It had apparently been just killed by a cat, as it was quite warm, and torn in the breast. The specimen is in the hands of Mr. Proctor, of the University Museum.—*H. B. Tristram; Castle Eden Parsonage, December* 9, 1852.

Occurrence of the Puffin (Fratercula arctica) *in Winter off the Isle of Wight.*—A dead puffin was picked up on the 4th of this month in Whitecliff Bay, perhaps a victim to the late stormy weather.—*A. G. More; Bembridge, Isle of Wight, January* 10, 1853.

Occurrence of the Sooty Tern (Sterna fuliginosa) *in England.*—I have the pleasure to record the occurrence of a bird near Burton-on-Trent, new, not only to the Fauna of Britain, but also to that of Europe. About four months ago it was reported to me that a strange bird had been killed at Tutbury, near this town, which, as my informant said, was a gull-billed tern. Being at the time very much engaged in business, and knowing that the specimen was not leaving the neighbourhood, I did not hurry to visit and examine it; in the mean time the bird was purchased by H. W. Des Vœux, Esq., of Drakelow Hall, and added to his collection of indigenous specimens. On seeing it there a few days ago, I at once saw that it was no previously recorded British species; and on referring to Wilson, Latham, &c., it became evident that it was the sooty tern, (*Sterna fuliginosa*). Considering that this species is so widely dispersed over the globe, that it is abundant in Australia and in some of the South Sea Islands, and is also found on nearly the whole length of the American coasts, the only wonder is that it has not frequently wandered to Europe. The specimen is in fine condition, and if you think it desirable to have a representation of it, I shall be happy to send you a drawing, as Mr. Des Vœux has kindly consented to lend me the specimen for the purpose. In this instance at least there can be no question as to whether the individual was truly a wild specimen, or had been kept in captivity, as I believe no successful efforts have ever been made to confine the terns. — *Edwin Brown ; Burton-on-Trent, December* 20, 1852.

Occurrence of the Fork-tailed Petrel (Procellaria Leachii) *near Penzance.*—A specimen of this bird was picked up dead at Pleming, near this town, a few days since, in an emaciated state. Its occurrence on this coast is rare. — *Edward Hearle Rodd ; Penzance, November* 27, 1852.

The Great Sea Serpent. — I have lately received the following account from my brother, Capt. Steele, 9th Lancers, who, on his way out to India in the Barham, saw the sea-serpent. Thinking it might be interesting to you, as corroborating the account of the Dædalus, I have taken the liberty of sending you the extract from my brother's letter. "On the 28th of August, in long. 40° E., lat. 37° 16′ S., about half past 2, we had all gone down below to get ready for dinner, when the first mate called us on deck to see a most extraordinary sight. About 500 yards from the ship there was the head and neck of an enormous snake ; we saw about 14 or 20 feet out of the water, and he *spouted* a long way from his head ; down his back he had a crest like a cock's comb, and was going very slowly through the water, but left a wake of about 50 or 60 feet, as if dragging a long body after him. The captain put the ship off her course to run down to him ; but as we approached him he went down. His colour was green, with light spots. *He was seen by every one on board.*" My brother is no naturalist, and I think this is the first time the monster has been ever seen to spout. — *Thos. Steele, Lt. Col. Coldstream Guards ;* 21, *Upper Brook St., December* 13, 1852.

The Sea Serpent.—I am told by a gentleman whose brother was on board the ship (the Barham) referred to in the following extract from 'The Times' newspaper of November 17, 1852, that the occurrence there related took place between 35° and 40° S. lat. and 40° and 45° E. long., being about 650 miles due south of Madagascar. I understand that the particulars of the event as there stated closely agree with those furnished to my informant, and further, which is perhaps the most interesting part of the whole circumstance, that the animal was observed to "blow" or "spout" in the same manner that a whale does.—*Alfred Newton.*

"*Extract from an Officer's Letter written between the Cape and Madras.* — You will be surprised to hear that we have actually seen the great sea serpent, about which there has been so much discussion. Information was given by a sailor to the captain just as we were going to dinner. I was in my cabin at the time, and from the noise and excitement I thought the ship was on fire. I rushed on deck, and on looking over the side of the vessel I saw a most wonderful sight, which I shall recollect as long as I live. His head appeared to be about 16 feet above the water, and he kept moving it up and down, sometimes showing his enormous neck, which was surmounted with a huge crest in the shape of a saw. It was surrounded by hundreds of birds, and we at first thought it was a dead whale. He left a track in the water like the wake of a boat, and from what we could see of his head and part of his body we were led to think he must be about 60 feet in length, but he might be more. The captain kept the vessel away to get nearer to him, and when we were within a hundred yards he slowly sank into the depths of the sea. While we were at dinner he was seen again, and a midshipman took a sketch of him, of which I will send you a copy."—*The Times.*

Note on the " Yellow Boa," (Chilabothrus inornatus).— About three months ago a female yellow snake was presented to us, which was brought from the Forest Estate, Trelawny, in the island of Jamaica. For some time after its arrival it appeared sluggish and unhealthy, but this we attributed to the low temperature it experienced during the passage, and fancied that after casting its skin it would feed and do well, but on the 6th of November last the keeper discovered fourteen young ones in the den, of which seven were dead and seven alive; of the latter five are still alive and doing well, and the old one has since cast her skin, and now seems in good health. Mr. Gosse, in his charming book on Jamaica, describes and figures this snake, which he calls the "Yellow Boa" (*Chilabothrus inornatus*), and on the whole seems to think that it is oviparous; and he appears to have arrived at this opinion from the circumstance of some eggs having been brought to him, when he was in Jamaica, from a place there called Belmont, and which were stated to be those of the yellow snake, and also from the fact of "Sam," his boy, having found a boa lying on a nest of trash made between the spurs of a fig-tree, where however no eggs were found. Mr. Gosse afterwards mentions that on killing the female yellow snake, young ones have often been found in her belly; that some labourers in the Pedro mountains killed one having twelve "grown" young ones in her, varying from 8 to 10 inches in length (the young ones in our menagerie were about the same length on the first day); and he concludes his notice by saying that his friend, Mr. Hill, thinks the yellow snake is viviparous, a young friend of his having caught a gravid female of this species, which after some days brought forth eleven young ones; and on this he remarks, that if there was no error in the observation of this case, it must be considered as an "aberration of habit," that the generation of the Boadæ is well known to be oviparous, and that the fact he has before mentioned as having fallen under his own observation, proves that "sometimes at least the Chilabothrus produces eggs;" and he then asks this question,—"Is it possible that a serpent, normally oviparous, might retain its eggs within the oviduct until the birth of the young, when circumstances were not propitious for their deposition?" In answer to this, one is tempted to ask whether it is quite certain that the eggs brought from Belmont were really those of the yellow snake, and whether the instances of the snake caught by Mr. Hill's friend, and the one in our menagerie, are not stronger proofs of its being viviparous, and especially as we do not hear of other instances where eggs have been found? Would it be considered a fair argument to ask why an oviparous snake should have the power of retaining her eggs any more than a hen?—the latter, it is certain, could not do so beyond a certain time, whether she had a nest prepared or not, and why should the reptile? The snake in our collection was brought over in a large box, and after her arrival was kept in a good roomy den, and it seems difficult to account for her not having, under the circumstances, dropped her eggs if she be indeed oviparous. It appears from the books that, so far as it is known, all poisonous snakes are viviparous. The yellow snake in our menagerie certainly has poison-fangs, Mr. Etheridge, of our Institution, and other scientific gentlemen, having repeatedly examined her; she has, besides, other characteristics of the viper tribe, and this I consider to be a very strong argument in favour of her being viviparous. I should mention that the young ones, the day they were discovered, exhibited the peculiarity mentioned by Mr. Gosse, — that of rearing their bodies until they appeared to rest on the tip of the tail; they moreover will dart open-mouthed at anything put near them, which act I have never observed in the young of the Boa constrictor, of which we have reared many here. I hope these remarks will elicit from some of your readers fuller accounts of this beautiful reptile, and that the question of its being viviparous or the contrary may be set at rest.—*Robert Coles, Hon. Sec. Bristol and West of England Zoological Society; December* 13, 1852.

On the Artificial Introduction of a Breed of Salmon into the River Swale, and a tributary Stream in Yorkshire. Communicated By JOHN HOGG, Esq., F.L.S.*

MR. HOGG communicated a letter with the above title, which appeared in the 'Durham Advertiser' for April 16, in the present year [1852], under the signature of Isaac Fisher, together with an unpublished letter from the same gentleman, in answer to a request from Mr. Hogg for further information; and added some observations of his own upon the same subject. From the letter published in the 'Durham Advertiser,' it appeared that Mr. Richard Harrison of Richmond had procured from the river Tees a brood of spawn, taken and milted from the living fish, which he deposited on the 29th of December last in a small tributary of the river Swale. On the 21st of March two of the ova were brought to the house of Mr. Fisher, and placed in a vessel of water, the fœtal signs were clearly distinguished, and in two days more they became living fish; he is consequently satisfied that the salmon is now restored to the river Swale, from which it has of late years been banished. In answer to Mr. Hogg's inquiries, Mr. Fisher states further that the ova and milt were obtained in the Tees, according to the directions given by Boccius, Shaw, and "Ephemera," in his 'Book of the Salmon.' They were taken from three female and two male fishes on the night of the 27th of December, and not deposited in the gravel of a small rivulet until the 29th of the same month. Part of the ova were also placed in a gravel-bed in the river Swale; but of the result of this part of the experiment Mr. Fisher has no present information. In one part the ova were placed too deep in the gravel, and on examination were found to be addled; while there is every reason to believe that those which were placed about 3 inches in the gravel have all been hatched. A live fish brought from the spawning-bed leaped out of the vessel in which it was kept and speedily died, and the two mentioned in the published letter also died in the course of about ten days, probably in consequence of the disturbance to which they were exposed from the curiosity of those who came to see them, and who were desirous of observing the extreme velocity with which they moved round the vessel, even while the vitelline bag was still attached to the abdomen. The spawning-bed was formed in a small run of spring water, which is never affected by the frost; it was cleared of minnows, young trout, &c., and at each end of a space of about 20 yards, whins were placed of a good height, kept down with stones, to prevent the entrance into it of other fish. After some observations respecting minnows, Mr. Fisher adds: — "We have proved the fact that the river Swale may be again stocked with salmon, provided we can make arrangements with the proprietor of a mill-wear, twenty-five miles from this place, to let the fish, on coming up from the sea, have 'free gap' from time to time."

---

* From the 'Proceedings of the Linnean Society,' May 4, 1852.

On these letters Mr. Hogg observes that it seems to him there can be little (if any) doubt that, with the precautions indicated, a vast increase of salmon might be obtained, and a sure and valuable source of wealth be secured in many suitable streams in which no salmon are at present found; and the same artificial process of breeding might likewise be applied to trout with an equally advantageous result. He suggests that the breeding might also be carried on in large wooden boxes or cases, having a layer of gravel at the bottom 4 or 5 inches deep, in which the ova and milt, or impregnated ova, might be buried, and the cases filled with pure water, which might be kept constantly fresh by allowing a small stream to run into them. When the fry had grown sufficiently strong, they might be conveyed to any distance in tubs filled water (which might be occasionally renewed), and having their tops perforated with holes. On the subject of the distribution of the species of fresh-water fishes, Mr. Hogg refers to the presence of trout and other fishes in mountain streams and alpine lakes, for which it seems difficult to account; but he suggests that as the presence of unusual plants in similar circumstances is only to be accounted for by the seeds having been dropped by birds, the problem with regard to fishes might be naturally solved in an analogous manner, their fry having been conveyed to these distant localities by means of water-birds.

Note on Gasterosteous leiurus, or probably G. trachurus.—I was much pleased with the observations of Mr. Warington in your last number (Zool. 3633), on the stickleback (*Gasterosteus leiurus*), as confirmatory of some remarks on that fish when kept in confinement, made by me in Loudon's 'Magazine of Natural History,' (iii. 329). It is some time since I had an opportunity of observing the habits of this very interesting fish; but I can add my testimony to almost all that Mr. Warington has written. Their pugnacious propensities appear to last only during the season of spawning, and the extreme brilliancy and beauty of the male fish ceases with this amatory period. Mr. Yarrell says that at this period both sexes exhibit "more than usual brilliancy;" but I have never observed any difference in the appearance of the female, except when full of spawn. Their ferocity, and tyranny over their vanquished fellow-prisoners, must be witnessed to be credited. Mr. Warington might have related how skilfully and often fatally they use their lateral spines in their combats. Previously to an encounter it is a most pleasing sight to witness the attitudes of the two combatants,—sparring as it were, and watching for an unguarded part in the opponent, and then darting upon him with surprising velocity. They swim round and round each other, with their spines projected, before the assault is made. I once had in confinement, with some of the other species, the Gasterosteus pungitius, which becomes coal black during the spawning season. This species is usually smaller, and their sides less bony and hard than the other species. An encounter took place between this black fellow and a fine and beautiful specimen of another species; and, after an unusually protracted fight, the black hero was overcome and sank to the bottom of the tub, literally ripped open by one of the spines of his opponent, and shortly after died. This I myself witnessed. When one has been beaten and driven from the position he had appropriated to himself in his place of confinement,—which he seldom yields without a struggle, generally occasioned by one invading the territory of the other,—his gay colours fade, and he unites himself with some other brethren who have either been similarly conquered, or, for some other reason, have not assumed the gay colours and fighting propensities of the others. This unfortunate squad is generally driven into an unoccupied corner of their prison, where they are wantonly and continually persecuted by their congeners. The mouths of these fish are armed with rows of exceedingly minute and sharp-pointed teeth, and a wound inflicted by these on the tail is often followed by death. The wounded part at first becomes white, then increases in extent, until the whole fish is covered with a furry-looking fungus; and as the fish sickens in death, the beautiful colours which had faded, as they always do after the fish are vanquished, re-appear, but not with their original brightness, and without that glowing and animated appearance which they exhibited when in health and vigour. I have never had an opportunity of witnessing their nest-building operations, but have frequently seen the male fish swimming about with a piece of ligneous fibre in his mouth, as Mr. Warington mentions. The eggs are hatched in March or April, as I have taken the young fry about June, entangled in the green silky weed found in all ponds. The adult fish will greedily devour their own fry, which they seize and swallow after the manner and with the voracity of the pike. They are said to survive three years, but I never could ascertain the correctness of this conjecture. It is so long since I kept these fish in confinement, and never having examined them scientifically, that I am unable to say with certainty to which species my remarks apply, but most likely to more than one. I only know that my specimens were caught in two ponds at the back of the Hackney road, called "Bunker's Ponds," and well known to botanists as containing in profusion the fringed yellow water-lily (*Villarsia nymphæoides*) and the sweet-smelling flag (*Acorus Calamus*). — *R. Wakefield; Sussex Place, Regent's Park, November* 26, 1852.

Land and Fresh-water Mollusca of Oxford and its Neighbourhood.

By Alfred Merle Norman, Esq.

The following list has been drawn up from specimens which I have myself found in the neighbourhood of Oxford during the last eighteen months. The range of many of the species which it contains is very limited, and consequently this locality for them may be acceptable to some of your readers. I believe that the list of water species is nearly if not quite complete; but as regards the land shells, I cannot help thinking that more are to be found somewhere or other, although I have searched the immediate neighbourhood pretty closely for them.

The study of our inland Conchology has of late years met with many votaries, and deservedly so, for it is in itself a most interesting pursuit, and can be most conveniently followed in conjunction with Entomology; in fact no one ought to study the one without the other. The entomologist, while collecting water-beetles, must necessarily at the same time obtain many shells in his net; when examining rocks and stones, he must meet with many Helices, Zonites, Bulimi, &c.; and when he brings home his bags of moss, and searches for Staphylinidæ and other minute Coleoptera, he will at the same time probably find many Clausiliæ, Pupæ, Vertigines, &c.: and so on in numerous other instances. Thus by having both objects in view, the collector will very often have the advantage of procuring rarities in one or other of his pursuits to reward him for his trouble; whereas had Entomology or Conchology alone been his object, he might have returned home empty-handed and disappointed.

The nomenclature used is that of Turton's excellent little 'Manual of Land and Freshwater Shells.'

Neritina fluviatilis. Very abundant in the Cherwell, on Confervæ, stones, and dead shells of Anodon cygneus.

Paludina vivipara. Common in many of the ditches round Oxford, particularly near West Hinksey.

„ achatina. River Cherwell. I have not found it in any of the ditches.

Bithinia tentaculata. Very common both in streams and ditches.

Bithinia ventricosa. In a ditch at the foot of Bullingdon Common, rare.

Valvata piscinalis. By no means common; West Hinksey, Port Meadow.

Arion ater. Common in the wet meadows, but I have only met with the black variety.

Limax flavus. One specimen.

„ agrestis. Abundant everywhere.

Helix aspersa. Very abundant.

„ hortensis. Common.

„ nemoralis. Very abundant and exceedingly varied.

„ pomatia. Stonesfield.

„ arbustorum. In many of the hedges, particularly at Somerstown.

„ pulchella. Banks of the river Isis.

„ Cantiana. Abundant, but local; Heddington and Shotover Hills.

„ granulata. Marshy ground at the foot of Bullingdon.

„ hispida. Common.

„ concinna. Not common; Magdalen walks.

„ rufescens. Very common in hedges.

„ virgata. On the dry hills around Bullingdon, Heddington, Shotover and Bagley.

„ caperata. Not so common as the last; Bullingdon and Heddington.

„ ericetorum. Not common; Heddington and Bullingdon.

Zonites radiatulus. I have a shell which I found in Magdalen walks, and which I cannot name, unless as a variety of this species. It differs from the usual type in being altogether larger, the whorls more rounded, and of slower increase, the colour deeper, and the shell opaque; the striæ, umbilicus, &c., are the same as usual.

Zonites lucidus. Banks of the river Isis.

Succinea putris. Common; Isis and Cherwell.

„ Pfeifferi. Rare; in a ditch running along the side of Cowley Marsh. I cannot help regarding this as merely a variety of the last.

Zua lubrica. Common; Magdalen walks, &c.

Pupa marginata. Rare; Heddington.

Clausilia nigricans. Bagley and Shotover.

Limnæus auricularis. Found in many of the ditches round Oxford, very common in the Cherwell.

Limnæus pereger. Very common.

„ „ var. *ovatus*, Drap. A ditch near West Hinksey.

„ „ var. *acutus*, Jeffreys. In the ditch running along the side of Cowley Marsh.

„ stagnalis. Very abundant and large.

„ „ var. *fragilis*, Mont. In ditches at West Hinksey.

„ palustris. Common in ditches, West Hinksey and Port Meadow.

„ truncatulus. On the mud of the banks of the Isis.

Ancylus fluviatilis. Not common; in the Cherwell, on stones and on shells of Anodon cygneus and Unio tumidus.

Velletia lacustris. I have found this species only in one ditch,—that on the right hand side of the foot-path leading from Oxford to West Hinksey, on submerged leaves of Nuphar lutea. It is curious that I did not find a single specimen on the leaves of Nymphæa alba, which was growing in the same ditch; was this merely accidental?

Physa fontinalis. In many of the ditches in the neighbourhood; particularly fine in the same ditch with Velletia lacustris.

Aplexus hypnorum. Very local; ditch at the foot of Bullingdon.

Planorbis corneus. Very abundant; very fine in the Cherwell, where it passes St. Clement's.

„ albus. Not common; ditches at West Hinksey and the river Cherwell.

„ carinatus. Rather common; Hinksey, Port Meadow and Christchurch Meadow.

„ marginatus. Very common.

„ vortex. Very common.

„ spirorbis. Ditch at the side of Cowley Marsh.

„ nitidus. Two or three specimens in a ditch in Christchurch Meadow.

Cyclas rivicola. Very common in the river Cherwell.

„ cornea. Found in most of the ditches.

Pisidium pusillum. Ditch at the foot of Bullingdon.

„ Henslowianum. Very rare; two specimens in the river Cherwell.

„ amnicum. Cherwell, and ditch in Christchurch Meadow.

Anodon cygneus. Common; the Cherwell and many of the ditches.

„ „ var. *rostrata*, Kokeil. One specimen in the river opposite Port Meadow.

Unio tumidus. Abundant in the Cherwell.

Dreissena polymorpha. A few specimens in the Cherwell.

All the above species are found in the *immediate* neighbourhood, except Helix pomatia, which is found at Stonesfield, about ten miles distant.

Alfred Merle Norman.

Clevedon, Somerset, December 11, 1852.

Discovery of Helix obvoluta in Hampshire.—Last winter, while superintending the marking of trees for thinning, in the beech-hangers which cover Stoner Hill, I poked about in the moss and dead leaves with a small prong, which I usually carry on such occasions to assist me in my search after chrysalids, shells, &c., when I turned up a dead shell of Helix obvoluta. Being a shell-collector, this of course instantly set me looking for more, and I succeeded in finding four or five, all dead. The next few days I devoted to the search, and discovered living specimens; and with the aid of a couple of the gamekeeper's children, whom I chartered for the occasion, I obtained altogether about a hundred dead and about eighty living specimens. On the first day of my search there was a rather hard frost, and all the living specimens I found were buried in the moss or decayed stems. There was afterwards a thaw, and some rain, and then they were to be found, towards evening, coming out to enjoy themselves and creeping over the moss. The locality mentioned in Turton's Shells (Gray's edition) as the habitat of H. obvoluta is misprinted in my copy; it should be "Ditcham Wood, *Buriton*, Hants," and not "Brenton." Ditcham Wood is about six miles from here, but is on a ridge of the chalk downs nearer the sea than that on which Stoner Hill stands. The two ridges are here quite distinct, and the intervening country is low and flat; therefore I do not think it possible that H. obvoluta could have spread or wandered to the Ashford woods from Ditcham. I make this remark with reference to the supposition expressed in Turton that it has probably been introduced and naturalized from abroad. Some time ago I obtained a few specimens of H. obvoluta from Ditcham Wood, and I have been lately informed that some have been taken in the large beech-woods of Uppark, which joins Ditcham, but I have not yet seen any of them. I obtained all my Ashford specimens within a few hundred yards of the spot where I discovered the first shell, and have not yet searched the other woods near, but have no doubt that it is to be found in similar localities, and this I shall endeavour to ascertain, for I firmly believe it to be a true native of England, though local in its distribution. The number (though only obtained by a most persevering search, as they were in winter quarters), and the fine growth of the specimens I collected, also incline me to this opinion. I have not observed its habits in summer, but mean to do so if I can, and shall be curious to ascertain if it prefers a northern aspect; the hill on which I got mine faced about E.N.E. I have not yet seen that volume of Forbes and Hanley's 'Mollusca' which contains the description of H. obvoluta, and therefore know not whether the following circumstance is mentioned there, but as it is not alluded to in Turton, will run the risk of communicating a fact which may be already well known, and state that all the living specimens I found had the shell thickly covered with very fine hairs, similar to those on Helix hispida, and which are so extremely brittle as to render it a matter of great difficulty to get the animal out without rubbing them off.

A few of those I collected were young specimens, about half grown, and these had no sign of the triangular mouth, or the reflexed lip, which characterize the species when full grown. — *William Henry Hawker ; Ashford Lodge, Petersfield, Hants, December* 24, 1852.

Description of a Young Lobster measuring only nine lines.—Generic character : — External antennæ not so long as the body: arm longer than the hand; inner margin toothed: anterior legs long, slender, equal; fingers long, slender, toothed; second and third pairs of legs didactyle, fourth and fifth monodactyle: rostrum wide, deeply grooved, armed on each side with four teeth, the sides parallel for two thirds of its length, and then tapering off to an acute angle, the apex trifid: carapace more nearly cylindrical, the segments terminating laterally in an acute triangular process produced to a spine. *Specific character :*—Body thick and rounded: cephalothorax deeper than broad, compressed at the sides; a furrow separates the gastric from the posterior regions; the latero-posterior portion is slightly punctuated: rostrum projecting beyond the peduncle of the external antennæ, wide and deeply grooved throughout, of even width through half its length and then running to an acute trifid apex; the carina on each side formed by the groove is toothed with three spines; that portion of each carina which extends on to the cephalothorax bears about a dozen teeth: rostrum straight, recurved at the extremity: eyes large, forward, completely protected by the rostrum: a small tooth on each side of and even with the base of the rostrum: external antennæ about two thirds as long as the body: abdomen semicylindrical, segments smooth, terminating on each side in a flattened triangular plate, which ends with an acute spine; the margins of the plate are toothed with very fine and numerous teeth; the three posterior segments are more spread than the others, thus giving a semi-oval appearance to that portion of the carapace: tail broad; the exterior laminæ strongly divided at their anterior third; the margin of their posterior portion dentated; two round carinæ start from a point at the base of the centre lamina, and, diverging, end at its extremity in a tooth at each corner, thus forming a triangular space between them: anterior legs large, equal, quite smooth, with the exception of the inner margin of the arm, which is toothed: arm as long as the hand; wrist one-third as long as the arm; hand about four times longer than broad; fingers almost as long as the hand, straight, and having numerous small teeth: the remaining legs filiform and weak; the second and third pairs didactyle, the fourth and fifth pairs monodactyle. Extreme length 9 lines: arm and wrist united 6¼ lines; hand 3 lines. The colour is straw (drying much darker), dotted in some parts with pink and in others with orange. I caught this individual on the 18th of August, 1852, in from 5 to 7 fathoms water, off Redcliffe Head, in Weymouth Bay, on a bed of Cystoseira fibrosa. The most apparent difference between it and the adult Homarus vulgaris consists in the much shorter antennæ, the more slender and more equal anterior legs, the wider rostrum, and the more acutely triangular plates of the segments.—*William Thompson ; Weymouth, January* 1, 1853.

Abstinence of a Spider.—In the 'St. James's Chronicle' of October 26, I see an account, copied from the 'Banffshire Journal,' of a spider having lived for a year without food; and it is curious enough that I have recorded a very similar circumstance which happened under my own personal observation, the only difference being that *my* spider is now dead. "Some time during the winter of 1850-51, I had a case (containing a stuffed water-rail) sent home from the bird-stuffer's, glazed, papered, and all complete: the case is about 10 inches by 8, and 5 inches deep. Shortly after it arrived, I observed a *very small* spider traversing backwards and forwards on its web, which it had spun from side to side of the case underneath the bird. All I did was mentally to abuse the bird-stuffer for his carelessness in omitting to put camphor in the case before glazing it; and also I resolved to take out the glass and eject the spider. However, in a multiplicity of occupations, I soon forgot all about the matter, until the autumn of 1851, when my attention was drawn to it by seeing the bird completely surrounded underneath by a strong web, and stationed in the midst of it, a spider of at least ten times the bulk of the small one I had seen there the previous winter, and looking fat and well, though with no signs of any other living creature in the case, nor any appearance of anything having been entangled in the web. From this time, feeling curious as to how the spider could live, thrive, and grow under such circumstances, I watched it from time to time, but never from that day until it died, about four months ago (some time at the end of last June), could I discover any trace of its having obtained anything to eat. It continued to increase in size up to about six months before its death; after which time, although looking perfectly plump and healthy, it became stationary in one particular part of the web, in which position it died and still remains hung up, though now considerably shrivelled. I am not aware of the species, but in colour it was nearly black." The case, as far as I can see, is perfectly air-tight, there not being the slightest aperture visible. From the time when I first saw the spider until it died, was a space of eighteen months. The above note may possibly be of interest to some of your readers, and worth recording as a tittle of evidence towards a more complete knowledge of the habits, ability of endurance without food, or organization, whereby some creatures can exist and even thrive without material sustenance: should this be the case, I shall consider myself most fortunate in having been able to add that tittle to the great mass of curious and useful information contained in the pages of the 'Zoologist.'—*Octavius Pickard-Cambridge; Bloxworth House, near Blandford, Dorset, November* 8, 1852.

On "Robber Bees," as described by O. Pickard-Cambridge, Esq.

By H. W. Newman, Esq.

I HAVE attentively read the account by Mr. Cambridge, of the robbers which attacked his hives on the 15th of September last (Zool. 3746), and as I have had a good deal of experience in the same way, I am of opinion that no one could have acted with more promptitude and decision on that occasion. As Mr. C. wishes to have opinions on the subject, I will give him mine. The hive in question had probably lost its queen at a time when she could not be easily replaced, in this case the bees would become dispirited and desert the hive, and probably some strong stock finding this out, sent their scouts — corsair bees, as that patriarch of apiarians, Dr. Bevan, calls them — to attack the hive in its weak state. I have had many instances of robbery, but not exactly similar to that recorded by Mr. Cambridge, for in the cases where so large a collection of honey exists, the resistance of the bees is very fierce, and they do not in general give up without a slaughter of several thousands on each side.

The extent of these robberies generally agrees with the number of stocks kept in a small compass; when a country is overstocked, continual robberies will always take place; and Mr. Butler, in his book entitled the 'Feminine Monarchy,' described them most minutely a hundred years ago. The fact is, that more bees are kept now-a-days than in the time mentioned by the bee-keepers alluded to by Mr. Cambridge.

I knew an instance of a worthy Kentish baronet, who kept bees and multiplied his stocks, in ten or twelve years, to nearly a hundred, in a bad bee-country too; in the end he got no honey, as the bees literally "ate each other up," as he termed it.

The bees which plundered Mr. Cambridge's hive were evidently not the natives of the hive, but most likely hereditary thieves from some stray stock not very far off.

Desertions most frequently take place in the spring; it is generally a sort of effort made in despair, and unless the bees overpower some very weak stock they always perish: mouldy or musty combs, occasioned by the wet soaking into them, will also cause the bees to desert. I had a fine stock desert a hive on the 4th of April, some years ago; they had been deprived of full seven-eighths of their combs in the autumn.

About ten years ago a Bristol newspaper announced a swarm of bees on the 30th of March! I immediately wrote to the owner to inquire particulars of this extraordinary event; he wrote me a polite note, informing me that the announcement of a swarm was a mistake, — that it was a desertion; and added that the hive in question was examined by a friend and neighbour of his, more conversant in these matters than himself, who found that the combs were completely riddled by a small moth, which had caused the bees to desert.

I have frequently seen the same furious attack made upon a hive containing comb only (in July and August), and no bees or honey, as that described by Mr. Cambridge; there must be something which these robber bees carry to their own hives from these old combs. I had at one time twenty-six stocks of bees, but never yet discovered the moth mentioned, nor the death's-head moth described by Huber; the latter is certainly not to be met with in England.*

I keep my bees as far apart as my garden will permit; and when I observe the bees of one stock in my garden attacking another, I immediately remove the stock that is attacked, or kill the robber bees; for I am convinced they are like dogs that take to killing sheep,—when they once begin they never give it up.

It is a great mistake to say that the robber bees are of modern date; the fact is, the increase of numbers in bees has in some measure kept pace with the population, and where a country is much overstocked, a series of wet seasons causes a proportionate increase of corsair bees. The detestable plan also of placing sometimes from twelve to twenty hives in a row, touching one another, is another great cause of confusion and plunder.

Ever since I first kept bees I have considered the plundering as the "besetting sin" of these curious insects, and it is quite plain from the ancient writers that it has existed from time immemorial.

I know of no remedy but the adoption of the "separate system" as much as possible; the flight of robbers in the same garden may then be watched by a quick eye. In the year 1848 I removed one poor persecuted stock 400 yards from my garden, but this did not prevent a partial robbery.

I confess that unless, as I have surmised, the queen died, Mr. Cambridge's case is a poser to apiarians, on two accounts:—1. *The large quantity of honey;* and 2. *The small number of dead bees near his hive.* If the moth had attacked the hive, its ravages would have been seen to commence at the outside of the combs. I now exceedingly regret that I did not visit the gentleman at the Golden Valley, in the parish of St. George, near Bristol, when he wrote to me about the desertion I have mentioned. I have no doubt that Mr. Cambridge will have several replies to his communication.

H. W. Newman.

New House, near Stroud,
January 10, 1853.

---

* My correspondent is, I think, in error here: the death's-head moth spoken of by Huber appears to be our Acherontia Atropos, and this certainly occurs in England, although its attacks on our bee-hives are not frequent.—*E. N.*

Note on "Robber Bees." — Mr. Cambridge's communication "On the Phenomenon denominated 'Robber Bees'" (Zool. 3746), may probably receive some confirmation from Dr. Bevan's account of the wax-moth (*Tinea mellonella*), whose depredations appear similar to those of the honey-moth, (*Achroia alvearia*); and I would beg to refer him to Dr. Bevan's admirable work on the 'Honey Bee,' chapter 21, on "Enemies of Bees."—*R. Wakefield; Sussex Place, Regent's Park, January* 11, 1853.

Notice of the Habits of Myrmica domestica, Shuck., *together with some Account of a means of turning the Industry of this minute Ant to account in the preparation of Skeletons of small Animals.* By GEORGE DANIELL, Esq.*

MR. DANIELL states that his attention was first attracted to this species of ant some years ago, by observing several individuals engaged, in the window of a house in Edwards Street, Portman Square, in dragging to the edge of the casement a large fly, which they finally succeeded in conveying through an opening in the wall. He found by repeated observations that, like the other species of ants, they uniformly followed the same track, passing and repassing, but never deviating from the beaten route. There appeared to be a regular chain of correspondence kept up throughout the track; and one of the ants, while travelling at its usual rapid rate, was frequently observed to be stopped by another, a communication passing between them by means of their antennæ, after which each would return in the opposite direction from that in which they were previously travelling. The track was found to terminate on the ground floor, where it disappeared in the party wall, the adjoining house being occupied by a baker, who stated that in the summer months these ants were a perfect nuisance to him, spreading themselves over all his goods, and especially the sweet cakes and sugar, of which they carried off incredible quantities. He indicated on his premises numerous tracks, traversed by myriads of these minute insects, each engaged in carrying off a grain of sugar or some other description of food to their dwelling-place, which appeared to be in the wall of the cellar, by the side of the oven, whence he found it impossible to dislodge them. To diminish their numbers he was in the habit of hanging against the wall a boiled sheep's liver, which they speedily covered, and then plunging it into boiling water; but even this wholesale destruction had very little apparent effect in thinning their ranks. In the same vault there were also multitudes of crickets (*Gryllus domesticus*) and black beetles (*Blatta orientalis*, L.), in every stage of growth and variety of colour, from the deep black to the pale albino; all of which appeared to entertain the greatest dread of these apparently insignificant creatures, retreating precipitately when they found themselves in the vicinity of a track, while several of the ants would immediately rush out of the line to chastise their intrusion.

---

* From the 'Proceedings of the Linnean Society,' March 16, 1852.

It now occurred to Mr. Daniell that he might make the laborious habits and fondness for animal food evinced by these ants serviceable to himself in the preparation of skeletons. With this view he placed some mice and small birds in boxes against the wall, but although the ants immediately attacked them, so great was the heat of the oven that the subjects were dried hard, and generally abandoned after the brains had been eaten out. Several other attempts in different parts of the cellar also failed, the skeletons being frequently destroyed by the crickets and beetles after the ants had abandoned them, until which time no other insect could approach without undergoing the punishment of death. Mr. Daniell then determined to endeavour to establish a colony in a cellar adjoining the oven and parallel with it, in consequence of which proximity the wall gave out a certain degree of warmth when the oven was heated. He first placed the most inviting food in the warmest corner, to which he had fitted a box with holes in it on the side next the wall, large enough to admit the ants, but not the larger insects; and this failing to attract them, he caught a great number from a piece of liver placed as a trap, and shook them into a box from which they had no means of escape, in which he closed them with abundance of food, but after seeking in vain for an outlet they congregated in one corner of the box and eventually died. His next expedient was to catch them in great numbers and turn them loose in the cellar; and repeating this process for several evenings, he had at length the satisfaction to see a track established extending from a small hole in the wall to the box in which their food was deposited. After some time another track was formed to another corner of the box at right angles with the first; and these tracks were never abandoned while he continued to avail himself of their services, which he did not cease to employ until he had completed by their means upwards of a hundred beautiful skeletons of small quadrupeds and birds, reptiles and fishes, the greater part of which are now in the collection of the British Museum. In the course of these experiments he made the following further observations on their habits.

They will not touch anything tainted, and prefer animals in the blood to such as have been previously cleaned. The plan which Mr. Daniell found to answer best was to take the object quite fresh, to skin it, extract the viscera, and cut off as much as possible of the flesh, and then to place it in the box. It is seldom that a skeleton is so entirely cleaned as to require no further preparation; but the smaller skeletons when taken quite fresh require only a very little subsequent maceration to complete the process, the more delicate and difficult portions, such as the cranium and vertebræ, being almost always cleaned in preference to the ribs and limbs; and even those portions of muscle which are not removed by the ants are generally so much detached by them, that a slight brushing or two after well soaking the object suffices to remove them. One of the great advantages of this mode of preparing small skeletons was found to consist in their perfectly preserving their natural size, the ants seldom destroying the ligaments, and the bones consequently not requiring wires for their attachment, which in some of the more minute skeletons it would be difficult if not impossible to apply. The labourers require, however, careful watching, as after having eaten the muscles, they occasionally destroy the ligaments, and even commence carrying off the smaller bones; a smart tap on the box is sufficient to drive them away from the object, on which they all immediately move off in a regular line to whichsoever opening they have entered at, leaving the skeleton free. When the objects are too large, they quit them suddenly after devouring what they think proper, so that sometimes where overnight thousands might have been seen at work, in the morning not one is to be found in the box; and nothing is gained by re-moistening the object, for they appear never again to touch anything which they have once abandoned. In the summer their vitality is great; from the cavities of a skeleton that had been three days immersed in water and afterwards placed in the sun, several ants were seen to emerge, and to become as lively as ever. But in winter, exposure to cold air, or immersion in water, when the thermometer is below the freezing-point, produces instant death, subsequent exposure to warmth failing, in these circumstances, to revive them. Their sense of smell appears to be very acute; if the finger be drawn across one of their tracks, multitudes rapidly congregate about the spot, examining it, and sending out runners to explore the vicinity. But if one of them be crushed by the finger and quickly removed, the next comer is instantly arrested in his progress, encircles the spot, ascertains the death, and communicates the intelligence with such inconceivable rapidity, that the whole line falls into confusion, numbers rush to the place, parties set off in pursuit of the offender, and woe to the unfortunate cricket that happens to be found in the vicinity of the track. By degrees the tumult subsides; for some time afterwards, however, every ant that passes makes a halt, but without quitting the line. Light does not appear to have any effect on their operations; they are not disturbed by the approach of a candle, although the slightest touch of the box instantaneously effects their complete dispersion; and the alternations of night and day appear to make no difference in their numbers, perceptions, or labour.

Mr. Daniell was never able positively to ascertain the place of their retreat; he believes it, however, to have been in the earth below the oven, and is inclined to think that they form a nest, inasmuch as they frequently carry off portions of vegetable fibre, and even the smaller bones, probably for the purpose of building, as they were always carried off entire, and he could never observe that any portion of a bone was eaten. In consequence of this latter propensity, he was never able to procure the skeletons of the small species of Gasterosteus, for example, entire, notwithstanding the closest watching. A single ant will carry away a rib of these small fishes; but in removing a larger bone they act simultaneously, some dragging it forwards and others pushing it on with their heads from behind. If, in ascending the side of the box, the bone fell to the bottom, they returned and recommenced their labour, never abandoning an attempt in which they had once engaged. The largest portion of bone which Mr. Daniell has seen them remove, consisted of the ulna and radius of Mus messorius, with the carpus attached. They appeared more eager in carrying off portions of bone in the months of January and February than at any other period of the year; but they worked most rapidly in the summer months, and it is astonishing with what celerity and perseverance they continued their labours, the most rapidly cleaned skeletons being always the best and whitest, the periosteum being entirely removed. With such pertinacity do they penetrate every cavity, that, minute as they are, they are frequently victims to the ardour of their attack, becoming fixed, for example, between the plates of the cranium, in the cellular texture of which they may be seen entangled and dead. Although, as before observed, very susceptible of cold, they appear also to be affected by heat; for in the summer months they were seen to bring forth their pupæ, when the oven was heated, from the various apertures in the wall, and place them in a box by the side, in which a supply of provision was always provided for them, and to return with them when the oven was cooled. Myriads of them might in this way be seen heaped together, but a tap on the side of the box caused a general rush towards the objects of their solicitude, which were carried off with inconceivable rapidity. The pupæ are white, and the whole duty of transporting them devolves upon the males or workers, of whom each female always has several attendant upon her. Young females are first observed towards the end of January, when the abdomen begins to be enlarged and of a whitish colour; they continue to increase in size until June, at which time the females appear to be most numerous. They progress more slowly than the workers, and deposit their eggs as they move along, which are instantly carried off by the attendants. The greatest number of pupæ are seen between June and September; but the eggs (which are white and have the appearance of grains of sand) are carried to and fro during the whole of the summer. Mr. Daniell noticed that skeletons cleaned by the ants were rapidly dissolved in a solution of chloride of lime; while others prepared by maceration remained for some time in a similar solution without injury, and were much improved in whiteness.

What has been done for Entomology in Scotland? — A Plan suggested to promote it, and another to assist the Student.—When we look at the labours of our entomological brethren in England, and compare the number of votaries of Entomology in that country with those of Scotland, we cannot but feel sorry to see such a great balance against us. But few, and only very few, have lent themselves to the task of investigating the wondrous race of insects; yet these few have been very diligent. The gay colours of the butterflies as they have flitted past; the metallic hues of the beetles as they have crawled across the pathways, or basked themselves in the shade of some overhanging stone; the humble-bees, which ever as they sip the sweets from the flowers, keep up an incessant tune, as if in thanksgiving to the Great Maker of all, who has so abundantly provided for them; the laborious ants, which have raised a dome so curiously chambered beneath; the spiders, with their strongly woven webs hung in a thousand alluring ways to entrap poor flies; the cunning ichneumon, the fop of insects, with his keen eye and jaunty manner, as he rambles with wonderful celerity all over the branch on which he has alighted, now giving another and another deadly thrust through the back of some unfortunate caterpillar which he has chanced upon; —all and any of these may, for the moment, have attracted the attention of the passer by, but this was all: no thought was spent on, inquiry made, or wonder raised, as to whence they came, why they were created, or whither they went. In many districts of Scotland the foot-print of the naturalist, in this branch of study, has been seldom noticed,—seldom has it been impressed by the foot of one of her own sons. In some districts there are those who have never dreamt of the

> "Infinite shapes of creatures there are bred,
> And uncouth forms, which none yet ever knew,
> And every sort is in a sondry bed
> Sett by itselfe, and ranckt in comely rew;"*

and how

> "Daily they grow, and daily forth are sent
> Into the world, it to replenish more."†

It is not because such persons consider the study of insects beneath them that it is not pursued, but because their minds have not been turned into the proper channel. Were this once accomplished, how many an hour now spent idly in the streets or elsewhere, might be improved, and the mind carried from the creature to the Creator! Perhaps the best and easiest way to give the young some knowledge of the wonders with which they are surrounded, would be to make Entomology a branch of education in every school. No difficulty would attend this; and certain it is that there are many who would willingly contribute very largely to the formation of a collection to be attached to each school for the use of the scholars. Or if even a collection were placed in some public institution in each town which boasts one, many might be induced to profit thereby. Books on the subject are necessarily very expensive, from the labour required in getting them up, and from the small number of readers; but might not such a laudable object as we are advocating lead to a reduction in their price?—for where one copy was formerly sold, the number would perhaps be trebled. Scotland is full of grand haunts for these creatures. Her lofty towering hills, some rugged and stony, others mantled with the purple heather interspersed with woods; her large glens, adown which run many a stream; her moors and her mosses,—all have their own peculiar tenants. Her remains of large forests, of which those that have been partially explored present proofs of their richness, and lead us to infer that the like might reasonably be expected of the others; her lakes, too, enjoy their novelties. Indeed, every variety of ground is to be met with, from hills like Alps to the sweetest pastoral. The very scenery itself is enchanting, and sufficient to entice the thoughts from their ordinary course. I remember that when ascending Ben Lomond for the first time, I paused half way up the elevation, in order to breathe awhile and look around me. The sun had been obscured for some time, but suddenly burst forth in all his splendour; and never can I forget the grandeur of the surrounding scenery. Not a bird skimmed along, not a leaf moved, not a breath of air interrupted the quiet, but all was breathless silence. At my feet lay the huge lake, like molten lead, so calm that you might have fancied it afraid to move, lest it should disturb the sleep which had fallen on all around. Its numerous islands, too, clad in the rich luxuriance of summer, and set down here and there, gave it a double charm. After I had gazed awhile I turned my face eastward. The sunlight fell full on the broad valley, and there was the river Teith, stretching away in tortuous windings towards Stirling, here and there encircling small islets, like liquid silver inclosing emeralds. For the time I forgot where I stood. I felt the blood run coldly through my veins, and "each particular hair to stand on end." Involuntarily I exclaimed,—"Wonderful! How wonderful are thy works, O God!" Often have I gazed from greater heights, and looked down on many scenes both before and since; but none of them have ever struck me so forcibly as did this one. Another thing also seems to be much wanted, which would greatly facilitate the progress of the beginner; and that is, a description of the meanings of the generic names applied to each family. All are not linguists, and any one might naturally wonder, and ask why to such a thing has been given such a strange-sounding name. And to hear a man calling them by their scientific names, mouthing words without knowing the reason why, also appears ridiculous. If all the names were explained, a key would be given whereby the learner could detect allied species, and be wonderfully assisted in describing anything he might possess; the door which before held fast the mystery would be unlocked, and there would the student stand, as if relieved from the weight of some burden beneath which he had been sinking. Perhaps the "Poser for Papa," which appeared in 'Punch' a few weeks ago, may be cited as as strong an argument in favour of such a thing as could well be hit upon. It is a cumbering of the mind without enlightening it. As a further proof of this, and in conclusion, I may add an anecdote which occurred to myself this last summer. At the little house where I lodged, about a mile from Loch Rannoch, the guidwife, well known for her kindness to one or two who have staid there, was very desirous to tell me about some one insect in particular which had been taken there the year before, and which I was to look for. She puzzled herself for a long time, and at last came into my room in a great hurry to say that "the *beast* was ca'd *Colia pulter*," (meaning Polia occulta). I looked astonished, not expecting to hear such an attempt, and she saw it; so, with a good-natured smile on her honest face, she added,—"Bless me! Surely they could find English for the beast, wi'out a' that nonsense! But maybe it was the fashion to puzzle folk."—*John Scott; London Works, Renfrew, October*, 1852.

---

* Spenser's 'Faerie Queen,' Book 3, Can. 6. † Idem.

Inquiry respecting certain appendages to the Haustellum of Diurnal Lepidoptera.—Perhaps some contributor to the 'Zoologist' can explain the cause and use of certain little yellow excrescences which I have more than once observed on the haustella of our diurnal Lepidoptera, but which, so far as I can learn, have not hitherto been described in the principal works on insect physiology. At first sight they might be taken for some extraneous substances adhering accidentally, but on endeavouring to remove them, I have found them so firmly fixed as to make me suppose that they really formed part of the haustellum. Last summer I captured at Charlton a female specimen of Hipparchia Janira, with no less than six of these excrescences attached; their colour at the base was yellow and somewhat transparent, and at the larger extremity whitish, there were also a few hairs growing from the same part of the haustellum: but one or two other specimens of this species taken at the same time were free from anything of the kind. As the subjects are somewhat akin, I inclose a sketch of the Lepidopterous larva with fungus-like excrescences exhibited at the July meeting of the Entomological Society, (Zool. 3564); and to the facts there mentioned I may add that during the time it remained concealed in the moss, the latter was occasionally moistened for the benefit of the chrysalides lying in the clay underneath; a circumstance that no doubt aided the development of these curious formations.—*Arthur R. Hogan; Charlton, Dundrum, near Dublin, December*, 1852.

Captures of Lepidoptera in the neighbourhood of Birkenhead during the past year.—

Chærocampa Porcellus, three reared from larvæ, three captured at New Brighton.

Pœcilocampa Populi, November 15—23, twenty-three at light.

Lasiocampa Trifolii, July, reared from larvæ taken in May at New Brighton.

Leucania crassicornis, September, not scarce on reed-blossoms after dark.

Luperina cespitis, August 26, at light.

„ abjecta, July 21, two, at sugar.

„ albicolon, end of May, in plenty, by raking the banks at New Brighton.

Spælotis præcox. I have taken this beautiful insect during the past season, at sugar, on ragwort-flowers, and by raking; but it is far from being plentiful.

Heliophobus popularis, September 18—29, at light.

Xanthia citrago, silago and cerago, September 6 to the end of the month, on ragwort-flowers, reeds, and at sugar.

Epunda lichenea, September 13—26, not scarce, sitting upon dead sticks in the hedges.

Hadena lutulenta, September 19, at sugar.

Hypenodes costæstrigalis, middle of July, in great plenty, flying at dusk amongst heath and furze, in a fir-wood near Birkenhead.

Ennomos Tiliaria. I took upwards of thirty of this insect at lights, during the month of September.

Crambus latistrius, end of August, twenty-eight, flying at dusk, and at rest upon stems of grass.

—*G. A. Almond; Oliver Street, Birkenhead, Cheshire, January* 4, 1853.

Notes respecting Acherontia Atropos. — The two communications under this title (Zool. 3716), seem to require a few remarks. Mr. Norman says, — "It does not appear to me to be difficult to account for the periodical plenty and scarcity of this insect. In warm seasons, similar to the one just past, the larvæ arrive at maturity and undergo their change into the pupa state in August, the moth appearing in the following month: their eggs would consequently perish from the low temperature of the ensuing winter." This latter assertion is not supported by facts, for we know that Spallanzani has recorded that he exposed the eggs of silk-worms to cold 23° below zero, and yet they all produced caterpillars. We know, too, that in the Arctic regions, during the brief summer, Culices abound to such an extent as to be an intolerable pest, and yet the intense cold of winter, which would not permit one of them to live, does no harm to their eggs. Yet Mr. Norman thinks that the cold of winter which would destroy the eggs of A. Atropos, would not prove fatal to the pupæ. I also think that they would not be injured thereby. Sir John Ross in one of his northern voyages exposed larvæ of Laria Rossii to a temperature of 40° below zero, thawed and froze them again several times, and still some went into pupæ, and arrived at the perfect state, (Zool. 3366). There seems no reason to doubt that had the experiment ceased after once thawing them, they would all have survived; and from this and other circumstances I am induced to believe that a frequent change of temperature, and, above all, long exposure to wet, is more hurtful to insect life than cold alone. The other remark I have to make is with respect to the luminosity of A. Atropos observed by Mr. J. H. Gurney. The same beautiful opalescent light may be seen in the eyes of all nocturnal Lepidoptera when in the dark, and a flowering ivy-bush full of Noctuæ seeking their food in an autumn night, seems to glow with countless little stars, and is a beautiful sight. Mr. Gurney will find a saturated solution of oxalic acid much more effectual in killing Sphinges and moths than Prussic acid.—*J. W. Douglas; Lee, Kent, December* 16, 1852.

Occurrence of Chœrocampa Celerio in Staffordshire. — I obtained a specimen of this rare moth on the 25th of September last; it was taken in a house on the outskirts of the town. It probably was slightly worn before its capture, but its appearance was certainly not improved by its treatment afterwards. Without doubt the high temperature of the late summer will cause the development of many rare species with us should the winter prove propitious.—*R. W. Hawkins; Rugeley, Staffordshire, November* 17, 1852.

Occurrence of Chrymodes Templi near Huddersfield. — Perhaps some of our entomological friends may be pleased to learn that I have taken two specimens of Chrymodes Templi. I trust that it will again turn up next year in such numbers as that it may be useful to others as well as myself. — *J. Johnson; Denby Parsonage, near Huddersfield, November* 15, 1852.

Capture of Agrotis subgothica in Nottinghamshire.—I have recently obtained a fine specimen of Agrotis subgothica, taken in October last in Nottinghamshire. — *Edwin Brown; Burton-on-Trent, December* 20, 1852.

*Occurrence of Agrotis lunigera in Scotland.** — The insect to which I propose for a few minutes to direct the attention of the Society, is interesting both on account of its rarity, and from its having only hitherto occurred in the British Islands, where it seems to be widely distributed, though the localities in which it has actually been observed are "few and far between," being limited to one in Ireland, one in England, and one in Scotland. It is now more than twenty years since Stephens first described it in his 'Illustrations' from specimens found near Cork, in Ireland; and since that period it had not been seen for a series of years. In the summer of 1848 it was again taken taken near Ventnor, in the Isle of Wight, by Mr. Maitland; but previously to this, on the 8th of August, 1844, while examining a spruce fir at Duddingston, which had proved very attractive to the Noctuæ throughout the season, in consequence of being covered with Aphides and honey-dew, I took a very singular Agrotis which I could make nothing of, but fancied might be lunigera. In the following year I sent it to London to receive the fiat of the English entomologists, who said it was a remarkable variety of A. exclamationis. Not satisfied with this, however, I sent it to Mr. Doubleday, who forwarded it to M. Guenée. That entomologist has recently returned the insect, having described it in his work on Noctuæ, forming part of the 'Suites à Buffon,' as Agrotis lunigera var. A; so that we have now a third, and a Scotch locality, for this interesting species, which is still further confirmed by a wing that I picked up on Arthur's Seat, which is undoubtedly that of the same insect. There is a rather singular circumstance, worthy of notice, connected with the insect, which is that both in the Isle of Wight and on Arthur's Seat, it is accompanied by another species of Agrotis not found in the intervening districts, — the A. Obelisca of the 'Wiener Verzeichniss;' showing the intimate connexion there is between a locality and the species which inhabit it, occasionally, as in the present instance, irrespective of difference of latitude; and that where we find a particular species, we may generally look for those with which it is associated in other districts where it occurs. —*R. F. Logan; Duddingston, near Edinburgh.*

---

* Read before the Royal Physical Society of Edinburgh, April, 1852.

New Locality for Eudorea lineola, and Note on the Larvæ.— On the 27th of last June I took several larvæ of the above rare Eudorea feeding under the yellow canker-moss on old blackthorns, growing on the sea-shore, on the south side of the Hill of Howth, a description of which may not be uninteresting to the readers of the 'Zoologist,' as the insect has hitherto been taken only near Doncaster, and that in the imago state. Length nearly 1 inch: ground-colour a pale dingy green, with three rows of olive-brown or brownish black square-shaped spots, those along the back being the largest; the intensity of the colours varies greatly, some being much darker than others. The larvæ were full fed when I took them, as they were all in pupæ by the beginning of July, and the first insects came out on the 16th of the same month.—*Richard Shield;* 6, *Fleet St., Dublin, December* 8. 1852.

Food and Transformation of the Larva of Elachista locupletella. — I am very glad to be able to give my brother entomologists an opportunity of rearing for themselves one of the most beautiful of our Micro-Lepidoptera. The larva of Elachista locupletella feeds on Epilobium alsinifolium, and perhaps, as has been suggested to me, may also feed on any plants of that order. This plant I find pretty abundant here at the bottoms of walls in marshy situations, and I have not unfrequently found as many as three or four larvæ feeding upon one plant, but never more. They are easily detected from being miners; the leaf becomes discoloured, and thus the habitation of the larva is at once made known. I have also had two mining the same leaf, but this I set down as a matter of necessity, from my breeding-cages being small, and the plants few in number in each. The larvæ are to be found in May, in a tolerably advanced state. They are of a dirty greenish brown colour, and when full grown are about three eighths of an inch in length. In my breeding-cages I had the insect in all its stages of larva, pupa, and imago at the same time. When about to undergo its transformation, which is about the first week in June, the larva quits the interior of the leaf, and either crawls away to the bud of some plant near at hand, which it draws together with beautiful white silken threads, or it rolls the edge of one of the leaves of the plant on which it has fed half round, and then constructs a snow-white covering, in which it changes to a brown pupa. The perfect insect appears in from fourteen to eighteen days after the transformation.—*John Scott; London Works, Renfrew, December* 7, 1852.

Economy of Crabro cetratus. — In February, 1851, observing several excavated brambles in a hedge which had been cut over, I felt curious to know the excavator, and carried home a few of them. On cutting open some of the stems, I found they were tenanted by three or four orange-coloured larvæ or pupæ; some of the larvæ were quite small, others apparently full grown; and the pupæ varied in colour from orange to jet black, many having the head and thorax black, with the abdomen orange. The nidi had been provisioned with a green Aphis. On the 16th of July following the perfect insects began to appear, and proved to be the Crabro cetratus of Shuckard. Some half-dozen ichneumons, with a shortish ovipositor, were developed about a fortnight before the Crabros. When I pinned the latter, they emitted a powerful perfume, somewhat resembling that of roses. A day or two previously to the appearance of the above, I met with an excavated raspberry-stem in our garden, and captured the female of the same species while in the act of fabricating her cells: she had excavated to the depth of nine inches, had formed three cells, and was busy with the fourth.

Each cell contained a single egg, of a pale pink colour, and was filled with a green wingless Aphis. The egg in the lowest cell was much larger than the others. In August last I dug another female out of a stump of whitethorn; in this instance the nest was provisioned with the black Aphis which infests the bean, and which had apparently been used as a matter of convenience, the adjoining field bearing a crop of beans, which were much infested with the Aphis. — *Thos. John Bold ; Long Benton, Newcastle-on-Tyne, December* 2, 1852.

Hive Bees in want of a Queen. — In your October number (Zool. 3627) are some remarks by Mr. Filleul on the subject of "Bees welcoming a new Queen." I can fully corroborate my worthy apiarian friend's statement on this head. About seven years ago, in the month of June, I had a strong stock of bees which showed symptoms of being in want of a queen, by at least half a peck of them hanging under the alighting-board ; and this continued for a fortnight. My attention was at this time turned to a very weak stock, in fact, almost dying. I turned up this unlucky stock, and found only about a hundred bees in the crown of the hive. The queen, apparently a lively beautiful bee, seemed to differ entirely from the workers, for they appeared dispirited and without energy. I seized the queen, took her to the outlying strong stock, and placed her on the only vacant place near the entrance; the guards rushed out and surrounded her, but after a few seconds of seeming consultation, they began to show strong indications of friendship ; they made way for her, and she was gradually conducted into the dense population of bees : this was about noon. On the next day, at 11 a.m., an immense swarm came away from the hive, and was safely housed. Huber, the great apiarian, differs from Reaumur on the subject ; but we need not wonder at this, when we consider that Huber was blind, and trusted to his servant, Francis Barens, for a great deal of his practical knowledge.

"Aliquando dormitat bonus Homerus ;"

and the same may be said of many great writers, — they most of them have their crotchets. I will mention another attempt to introduce a fresh queen. A swarm went off and was hived : about an hour afterwards I discovered a bunch of bees on the ground, and on disturbing them I found a queen. I attempted to introduce her to another hanging-out swarm, but although the bees offered her no violence, they would not admit her, and she was literally "bowed out" until she fell off the board to the ground. Probably she may have had defects which the bees discovered. Bees, as Mr. Filleul says, are not confined by strict rules ; they are most capricious insects at best. As he is a persevering experimentalist he finds it so ; but I wish him every success : one so hearty in the cause is sure to succeed in the main. In the simple experiment mentioned by me, it is plain that even bees with one queen at swarming time will not reject a second ; and it is a strange thing that some stocks will go on two or even three years and never throw off a swarm ; the cause can be only a matter of conjecture to the apiarian. —*H. W. Newman ; New House, Stroud, December* 15, 1852.

Do Bees look out at Swarming-time for a Place to go to ? — I am of opinion that they do, but have never been able to ascertain that every swarm went off without first settling at a short distance from the hive, thus showing their dependance upon man in their state of domestication. The illustrious French naturalist, Reaumur, ridicules the idea of hive-bees looking out for a place to go to ; although he was a great observer, particularly among the Bombinatrices, I believe he was wrong in his conjecture about this habit of the hive-bee. I will mention a few instances from amongst many. A swarm settled in a hot day on an espalier in my garden; before I had time to commence hiving them, they took flight in a straight direction to Thornbury Castle, and entered a crevice of the old wall on the south-east aspect. At night, after sunset, with the help of a ladder, they were hived in safety and commenced working directly. On another occasion, a swarm unperceived settled away among some peas late in the afternoon, where they remained all night. I discovered them early next morning, and told my man to get a hive for them, but before he arrived with it the bees were aroused by the hot sun and went off with great velocity, no doubt having a young and skittish queen. They flew 1200 yards in a direct westerly course, and settled in a hollow tree, where they remained unmolested. On another occasion I had a hive with some old combs in my garden in June. "Scouts and quarter-masters" were seen every day entering this hive; at last a prime swarm came off one of my old stocks, and after two or three minutes' flight in the usual way, they settled under the alighting-board of the hive with old combs, and hung in an immense bunch. I was obliged to dislodge them from the board after waiting a long time to see if they would enter the hive, and then hived them in the usual way. A fourth instance of a long flight of a cast is as follows. A cast containing about 5000 bees took possession of a vermin-trap by the sea-side, in a very remote part of Somersetshire. I saw these bees working from the trap; they had made combs a foot long, and had honey. The owner told me that he had scoured the country and discovered that there were no bees kept within four miles of the place, evidently showing what a prodigious flight they had taken. In the last instance the owner had neglected to watch his bees; but it is quite plain that some parties must have visited the wooden trap and communicated the locality in their own way to the swarm. Many inexperienced persons have mistaken a desertion for a swarm. In cases of desertion, which generally happen early in the spring, the bees get dissatisfied with something, and set off in a few days in a direct line, generally taking possession of the roof of some house, or a chimney, where they always perish: it is a sort of desperate effort, but at last ends in their destruction; the bees at these times having neither numbers nor materials sufficient to make new combs. I allude of course to desertions from the old stock.—*Id.*

Note on the scarcer Species of Andrena being found on the Catkins of the Willow.— For several years past I have captured from off the catkins of two willows (male and female trees) several specimens of Andrena spinigera and A. apicata; and last year a specimen of A. eximia. And a friend has also captured off a willow in the neighbourhood of Cambridge, a female of Andrena Smithella, with three or four males, which he considered as belonging to the same species. I give this information, thinking it may lead collectors to be on the look-out as early as the first week in March, about which time I have each year captured the above species. The cleanest are taken from off the female tree, but bees loaded with pollen are easily freed from it by being placed in a bottle lightly filled with grass, the mouth being covered with net to keep them in until they have freed themselves from the pollen. I may add that I have a few spare duplicates of Andrena distincta, taken last year, a specimen or two of which I shall have pleasure in giving to any collector who may be in want of them. — *W. H. L. Walcott; Clifton, Bristol, December*, 1852.

Voracity of the Larva of a Beetle. — One afternoon in July last, I noticed a large earth-worm, about six inches long, crawling across the pathway in a field, with some object attached to it which it appeared anxious to get rid of, as it kept writhing about as if in pain. On closer inspection I found that its unwelcome attendant was a Coleopterous larva, nearly an inch in length, which was firmly attached to the worm by its powerful jaws, at about two inches from the extremity of its tail, where it had nearly eaten through the worm. On examination, the insect closely resembled the figure of the larva of either Steropus madidus or Omaseus melanarius, as given by Mr. Westwood in his 'Introduction to the Modern Classification of Insects,' (i. pl. 2, fig. 4). The circumstance of this larva attacking a large worm may not be uncommon, but it was new to me; and the only allusion I find to such a propensity among the larvæ of beetles, is made by Swammerdam; who, speaking of the larva of Staphylinus, says it can very quickly kill earth-worms with its powerful teeth, and afterwards suck them." (Hill's edit. p. 125).—*R. H. Meade; Bradford, Yorkshire, November* 8, 1852.

Note on the Perforation of a Cistern by Anobium striatum. — At a meeting of the Linnean Society on November 18, 1852, " Mr. Adam White, F.L.S., exhibited, on the part of J. H. Gilbert, Esq., Ph.D., of Harpenden, near St. Albans, a portion of a wooden cistern lined with lead, and perforated with numerous holes by the Anobium striatum, in relation to which he entered into a detailed account of the circumstances in which it had occurred. In this case the cistern, which belonged to Mr. Curtis, a brewer of Harpenden, was made from an old fermenting tub, which had become much worm-eaten on the outside. In 1838 it was lined with thin lead (of 5 ℔s. to the square foot); but in little more than three years it began to leak, when some small holes were discovered in the lead and were soldered over. In 1842, however, the leakage had increased to such an extent that the leaden lining was removed, and a thicker one (of 18 ℔s. to the square foot) was substituted. Five or six years afterwards, however, the leakage again commenced; and in 1850 it had proceeded to such an extent that the cistern was entirely removed to make room for one of iron. On taking out the lining it was clearly ascertained that the perforations from which the leakage arose were the work of an insect, which, after boring through the wood, had made its way also through the leaden lining. A specimen sent by Dr. Gilbert to the British Museum was determined by Mr. White to be the Anobium striatum; and similar instances of injury to wooden cisterns lined with lead were referred to, as detailed in Mr. Westwood's 'Introduction to the Modern Classification of Insects,' in the 'Zoologist,' and in the 'Proceedings of the Entomological Society.'—*From the 'Proceedings of the Linnean Society,' No.* 47, *p.* 153.

*List of the Echinodermata hitherto met with in the Moray Firth.**

By the Rev. GEORGE GORDON.

THE late Laird of Brodie solaced the decline of life by the interest he took in collecting and transmitting to those more highly versed in such matters, whatever in the animal or vegetable kingdom appeared to him either rare or curious in the northern locality in which he resided. He was thus the means of introducing to the scientific world, in the beginning of the century, several new species. From among the creelfuls of sea-weed which old Bell Innes, hired for the purpose by the late Dr. Gordon of Drainie, carried after a gale from the shores of Stotfield to Brodie House, the Laird was enabled to detect and pick out Algæ new to the eye of Smith, and fitted to try the iconographic skill of Sowerby. His name still lives in Calithamnion Brodiæi, and in the species of Polysiphonia and Chondrus that are also named in honour of him. Two of the most beautiful of the Echinodermata—the purple star and knotty cushion-star—were first figured as British in Sowerby's 'Miscellany,' from specimens procured from the Moray Firth by "James Brodie of Brodie, Esq."

---

*In continuation of the 'Fauna of Moray,' see Zool. 421, 502, 551, 3454, 3480, 3678.

It were needless to say that the order and nomenclature in the present list are taken from the 'History of British Star-fishes' by Professor Forbes,—incomparably the best work extant upon the British Echinoderms; and the present generation has but little chance of ever getting a better guide to the study of these animals.

Rosy Feather-star, *Comatula rosacea.* A very mutilated specimen from the stomach of a haddock, killed in the Moray Firth. in 1850, is all that has been obtained, but enough to show the existence of the species in this locality.

Common Sand-star, *Ophiura texturata.* Common in the Firth. Fine specimens are occasionally to be found on the fishermen's lines. "Frequent in Burghead Bay," *Mr. M'Donald.* Mr. Weir has procured some large and complete individuals at Lossiemouth.

Lesser Sand-star, *Ophiura albida.* Common.

Ball's Brittle Star, *Ophiocoma Ballii.* A few specimens only have been found, in the stomach of a haddock.

Long-armed Brittle Star, *Ophiocoma brachiata.* Very common. A favourite element of the food of the haddock at all seasons of the year.

Granulated Brittle Star, *Ophiocoma granulata.* Banffshire coast, *Mr. Harris;* by whom specimens have been presented to the Elgin Museum.

Daisy Brittle Star, *Ophiocoma Bellis.* Frequent; as at the Skerries of Covesea, &c.

"Gamrie Head," the locality of the "new British Star-fish," described by the Rev. Mr. Smith (Zool. App. cix.) under the name of O. parmularia, is within the limits of the Moray Firth, the district comprehended in this list.

Common Brittle Star, *Ophiocoma rosula.* Much oftener to be met with between water-marks than any of the genus. One found with six rays.

Common Cross-fish, *Uraster rubens.* "Craw-feet" or "Cosfit," as the fishermen call them. Most abundant, and from its vast numbers most destructive to the bait of the fishermen, who look on it as their chief bane in their labours. The U. glacialis has not been met with and identified on this part of the coast; but it is highly probable that it, as well as the less distinct species, U. violacea and hispida, would be detected here, were authentic specimens, so superior to the best figures, at hand to compare them with.

Eyed Cribella, *Cribella oculata.* Frequent.

Rosy Cribella, *Cribella rosea.* Found some years ago on the Elginshire coast, by Alexander Robertson, Esq., Woodside. Mr. Harris also meets with it at Gamrie, Banffshire, and has sent two fine specimens to the Elgin Museum.

Purple Sun-star, *Solaster endeca.* Not rare at any of the fishing stations of the Firth, being often brought ashore on the lines. First recorded as British by Sowerby as "found by James Brodie, Esq., on the Nairn coast, in the Moray Firth."

Common Sun-star, *Solaster papposa.* More frequent than S. endeca. In a parcel sent from Stotfield in 1850, there were twenty-five specimens of S. papposa and six of S. endeca.

Birds'-foot Sea-star, *Palmipes membranaceus.* Several specimens of this rare species have been obtained of late years by the Lossiemouth fishermen. Gamrie (Zool. 3307), Cullen, and Portmahomack, are also places where it is known to have been brought ashore. The Cullen specimen had a uniform tint of pinkish red over the whole dorsal surface; margin of the under surface deep red, centre white.

Although Professor Forbes says of the next species, the Gibbous Starlet (*Asterina gibbosa*), "In Scotland I have found it on the gneiss rocks of Ross-shire," it is not intended to include it in this list, as in all probability the part of Ross-shire referred to is that which is washed by the waters of "The Minch" on the north-west, and not the eastern part of the county which is bounded by the Moray Firth.

Another star-fish also found near, but not in, the Moray Firth, is Templeton's Cushion-star, (*Goniaster Templetoni*). "Dr. Pollexfen found it on the shores of Orkney," and hence it may soon be met with on the south-eastern shores of Caithness or Sutherland.

Knotty Cushion-star, *Goniaster equestris.* This beautiful star-fish strikes the eye of the fisherman as something worthy of being brought to land, and hence it is oftener to be seen preserved by them than others that are equally if not more rare. "It was first figured as British by Mr. Sowerby, in the 'British Miscellany,' from a specimen 'found by James Brodie, Esq., in February, 1806, on the coast near Brodie House,' in the North of Scotland."

The Butthorn, *Asterias aurantiaca*. Frequent. The fishermen say that this star-fish is commonly found on "hard" ground, that is free from shifting sands or mud.

The Lingthorn, *Luidia fragilissima*. Both varieties have been met with by the Rev. Jas. Weir, at Lossiemouth, when brought from the fishing-ground by the boats. Perhaps no two varieties of any of the Echinodermata at first sight look so like distinct species. They differ in the number of the rays, and, so far as has been observed in this district, in size and colour. This species has been found by Dr. Fleming at Cromarty; *Alex. Robertson, Esq.*, Woodside. Both varieties have been obtained at Gamrie by Mr. Harris, (Zool. 3307).

Common Egg Urchin, or Sea Egg, *Echinus sphæra*. Occasionally found on the sea-rocks at low-water, as at the Stotfield Skerries, &c. A frequent ornament on the mantel-piece.

Purple-tipped Egg Urchin, *Echinus miliaris*. Abundant wherever the shore is rocky.

Green Pea Urchin, *Echinocyamus pusillus*. Frequent in the stomachs of haddocks, and occasionally found among shells on the sea-beach.

Purple Heart Urchin, *Spatangus purpureus*. Occasionally found in the stomach of the haddock, but always in fragments.

Common Heart Urchin, *Amphidotus cordatus*. "Skate's Eggs." Frequently found on the beach; and often filling the stomach of the haddock, which seems to be partial to it in feeding.

Rosy Heart Urchin, *Amphidotus roseus*. Rare.

Angular Sea Cucumber, *Cucumaria pentactes*. Occasionally met with.

The Tailed Priapulus, *Priapulus caudatus*. Seems not uncommon from the number seen in some fish, cod and haddock. The size and some other particulars, not being the same in all, seem to indicate more than one species of Priapulus in the Moray Firth.

The two last species must be but a very small proportion of the Holothuridæ and Sipunculidæ that inhabit the broad and deep waters of this arm of the German Ocean. To be able to enumerate no more from such a field, shows at least that little attention has as yet been here paid to these tribes. In order, then, to assist in identifying such forms as may afterwards come under notice, specimens of these two tribes, of the other Echinodermata, and of such of the Crustaceans as are not included in these Lists, but which are likely to be found thus far North, are earnestly solicited; in exchange for which duplicates of several of the rarer species of Crustaceans and star-fishes already found in the Moray Firth will be readily given.

G. Gordon.

Birnie, by Elgin, November, 1852.

Proceedings of the Entomological Society.

January 3, 1853.—J. O. Westwood, Esq., President, in the chair.

The following donations were announced, and thanks ordered to be given to the donors: — The 'Zoologist' and the 'Phytologist' for January; by the Editor. The 'Literary Gazette' for December; by the Editor. The 'Athenæum' for December; by the Editor. The 'Annals of the Lyceum of Natural History of New York,' Vol. v. Nos. 9—14, 1852; by the Lyceum. 'Second Report of the Commissioners for the Exhibition of 1851;' by the Commissioners. Hewitson's 'Exotic Butterflies,' Part 5; by the Author. 'Monographie des Guêpes Solitaires, ou de la Tribu des Euméniens,' par H. F. de Saussure; by the Author.

The following gentlemen were balloted for and elected Members of the Society: William Thomson, Esq., Westow Hill, Norwood, and E. C. Buxton, Esq., Spikelands, Liverpool: also the following as Subscribers to the Society: — Mons. Victor Signoret, Paris; H. V. Tebbs, Esq., Southwood Hall, Highgate, John Scott, Esq., Ferry Road, Renfrew, and F. Moore, Esq., 4, Molesworth Place, Kentish Town.

The President, having appointed Auditors of the Treasurer's Accounts for the past year, and announced the changes recommended by the Council to be made in the Officers and Council at the Anniversary Meeting on the 24th of January, informed the Members of the death of J. F. Stephens, Esq., one of the Vice-Presidents of the Society, on the 21st of December, after a short but severe illness; and stating that he should allude to his life and labours in the Anniversary Address, proposed as a tribute of respect to his memory that the Meeting should forthwith adjourn; which was unanimously agreed to.

Resolved further, that a letter of condolence on her melancholy bereavement, be sent to the widow of Mr. Stephens in the name of the Society.

Anniversary Meeting, *January* 24, 1853. — J. O. Westwood, Esq., President, in the chair.

The Secretary read the chapter of the Bye-laws pertaining to the Annual General Meeting, also the Report of the Library and Cabinet Committee made to and adopted by the Council.

One of the Auditors read an abstract of the Treasurer's Accounts for 1852, from which it appeared that there was a deficiency of Assets compared with Liabilities of

£18; to which should be added £7 for Subscriptions due, which must be deemed to be bad debts, making a total deficiency of £25.

In drawing attention to this matter, the President stated that the Council saw no reason for despondency, for the excess of expenditure over income was due in a great measure to the unavoidable outlay in removing from Bond Street, and fitting up the Library, Museum, &c., in the new rooms; the removal itself being forced upon the Society by circumstances over which it had no control, and they therefore recommended that as the adverse balance was the result of accidental events, it should be met by a general and special subscription among the Members, in order that the operations of the Society might not be impeded.

The President having appointed two Scrutineers, the ballots took place, when it appeared that Messrs. E. Newman, W. W. Saunders, A. F. Sheppard, and S. Waring, were elected into the Council, in the room of Messrs. F, Smith, H. T. Stainton, J. J. Weir, and W. Yarrell; also, that the following were elected to the respective offices: — Edward Newman, Esq., F.L.S., Z.S. &c., President; S. Stevens, Esq., F.L.S., Treasurer; J. W. Douglas and W. Wing, Secretaries.

The President delivered an Address on the state of the Society, and the progress of Entomology generally during the past year; for which, and his services to the Society, the Members passed an unanimous vote of thanks, and he was requested to allow his Address to be printed.

Votes of thanks were also passed to the Treasurer, Secretaries, and retiring Members of the Council.

The President announced that the Council had received three essays, in competition for the prize of £5 offered by the Society for the best essay on the duration of life in the male, female, and worker of the honey-bee; that they had adopted the report of the Committee to which they had been referred, namely, that the essay bearing the motto, "In tenui labor, at tenuis non gloria" was very able and worthy of the prize; and upon the accompanying note being opened, the author was found to be Mr. Desborough, of Stamford. Mr. Desborough being in attendance, was then presented with the amount of the prize.

The unsuccessful essays will be delivered to the authors, upon the presentation of their order to do so, accompanied by a copy of the motto adopted by them, the envelopes containing their names not having been opened.—*J. W. D.*

Proceedings of the Microscopical Society.

June 23, 1852.—Geo. Jackson, Esq., in the chair.

A paper by Professor Williamson, entitled "Further Contributions to the Structure of Volvox globator," was read.

The author's views with respect to the cellular nature of certain appearances in Volvox globator, as detailed by him in the 'Transactions of the Philosophical Society of Manchester,' having been controverted by Mr. Busk in a paper lately read to this Society, and as subsequent researches have, in Mr. Williamson's opinion, confirmed his former statements as to the cellular structure of that organism; he considered it necessary to lay before the Society the present paper, containing some account of the observations by which he considers he has established the correctness of his former assertions. The object of the paper was therefore to adduce proofs, not of the vegetable nature of Volvox globator, for on that point both gentlemen agree, but of the cellular nature of certain appearances in that body. The author described the hexagonal cells which form a peripheral stratum in the Volvox as being exceedingly difficult to detect in the living organism, and gave an account of their various appearances under different circumstances, stating also that difference of locality alone is sufficient to produce very varied appearances, as well as differences in the time of the year. The radiating threads which connect the cells were described at great length and minutely detailed, and the conclusion arrived at was that these threads consist partly of the ductile mucilaginous membrane of the protoplasm, and partly of its contents, the latter being present in various proportions. He also instituted a comparison between the cells in certain Ulvaceous plants and those of Volvox, and stated that he considered the vesicles of the latter to be of precisely the same character as those of the former, and consequently that they are, in every sense of the word, real cells. The author next investigated the origin of the superficial pellicle of Volvox, which he considers as formed by the consolidation of the cell-walls; and then proceeded to endeavour to determine the relative periods at which the cells, the superficial pellicle, and the cilia are developed, and expressed his opinion that the cilia are the first to make their appearance, the cells and outer pellicle being subsequent growths. The nature of the fluid within the Volvox formed the next subject for discussion; this he considers not to be water, but apparently mucilage. He then pointed out the close analogy that exists in the development of Volvox globator, and that exhibited by many of the lower Algæ and Confervæ; and concluded by expressing his opinion that every fact brought to light by this inquiry tended to confirm his previous conclusions, namely, that the affinities of the Volvox are with the vegetable rather than with the animal kingdom.

October 27, 1852.—George Busk, Esq., in the chair.

A paper by Joseph Delves, Esq., "On the Application of Photography to the Representation of Microscopic Objects," was read. After some preliminary observations the author stated that the only arrangement necessary for the purposes of photography is the addition to the microscope of a dark chamber, similar to that of the camera obscura, having at one end an aperture for the insertion of the eye-piece, and at the other a groove for carrying the ground glass plate. This dark chamber should not exceed 18 inches in length, as, if longer, the pencil of light transmitted by the object-glass is diffused over too large a surface, and a faint and unsatisfactory picture is the result. Another advantage is that pictures at this distance are in size very nearly equal to the object as seen in the microscope. The time of producing the picture varies from 5 to 15 seconds. The author also made some remarks upon the mode of manipulating, and concluded by calling attention to some very beautiful specimens that were afterwards presented to the Society.—*J. W.*

Proceedings of the Royal Physical Society of Edinburgh.

THE first meeting of the eighty-second session of the Royal Physical Society was held on Saturday, November 13, at two o'clock, at 6, York Place, when there was a very full attendance of members and visitors.

DR. COLDSTREAM, on taking the chair, delivered the following opening address, for which the cordial thanks of the Society were tendered to him:—

"There has been of late a great increase in the numbers of earnest and successful students of nature. In all parts of the three kingdoms we find accomplished naturalists; here solitary, there in groups. Go where you will, you meet with, or you hear of some industrious geologist or zoologist. In the most remote localities you are presented with the proofs of youthful zeal in collecting, or of laborious earnestness in examining: the scalpel and the microscope, the pencil and the pen, are all diligently employed in situations and circumstances in which they were, till lately, almost unknown. I believe that the many admirable papers and monographs which are published almost daily in our scientific journals, and transactions of societies, supply imperfect indications of the amount of natural history research constantly carried on. There is a large body of sincere lovers of nature who have learned to search out the wonderful works of God for their own sakes,—to gaze upon their beauty, as expressive of the ineffable attributes of the Divine mind,—and to realize in their own souls those healthful emotions which the contemplation of creation in a proper spirit never fails to inspire. Doubtless all now present agree with me in regarding this state of matters as in a high degree satisfactory and encouraging; for most of us have felt how good a thing it is to consider the admirable forms, structures, and functions of the created objects that surround us; and we desire nothing more than to have this good, of which we have tasted, shared in by others. The constitution of our nature does not admit of *all men* becoming naturalists, but we are sure that it would be greatly for the advantage of society at large were the taste for natural history still more widely diffused than it is even now. And it is to promote such diffusion that this and kindred societies have been instituted and are maintained. The earnest spirit of research, once fully roused, generally impels those actuated by it to seek for the society of persons like-minded, to impart to them their discoveries and their theories, and to exchange expressions of mutual sympathy. Hence it is that associations of naturalists have existed in all places and in all times, in which true philosophy held sway. At no time, however, were they more needed than at present, when the sciences of observation have been so greatly enlarged that it is hardly possible for any one mind to grasp the whole range of them. There is neither capacity deep enough, nor life long enough, to enable any man to possess himself of the recorded results of modern scientific research. And yet a general knowledge of the progress of discovery, in all the fields cultivated, is essential to the satisfactory working of any one of them. Every naturalist worthy of the name feels the desirableness of watching the advance of others in the domains beyond his own. To get on well in his own field, he must at least occasionally ascend a hill, and observe what is doing in his neighbour's fields. And just such posts of observation are societies like this. We come together for mutual improvement in the knowledge of nature, and, by the expression of that sympathy which all naturalists love to cherish, to cheer one another onwards in our respective paths. The prime object at which we aim is the increase of our acquaintance with creation, which ought to lead us to praise the Creator; and the second is, the increase of our interest in each other's welfare. And how vast the field is over which we are called to expatiate! Although we have agreed to limit our attention, as a Society, chiefly to zoology, palæontology, and microscopy, we find a great range of subjects, with the whole of which a few only amongst us are acquainted; but we agree to learn from one another; and we believe that the very youngest amongst us may furnish something that may increase our common stock of knowledge. Even in the fields of natural science which we have marked out for our proper cultivation, we believe that there are riches inexhaustible,—food for the mind in unimaginable quantity. Doubtless, it is a common idea amongst young naturalists, that in a short time, through the united labours of so great a body of zealous observers as now exists, the science of natural history is likely to be so perfect that there will be no room for the researches of future observers. It seems not at all an impracticable thing to assemble specimens of every animal, plant, and mineral species that exists on the surface of our globe, to describe their structure, and to learn their habits; and supposing this to be done, there would apparently be an end put to the calling of the scientific naturalist. But wonderful it is how the charm of novelty is unceasingly supplied to those who give themselves to the work of searching out the secrets of creation. Even amongst the smallest, and apparently simplest, organisms, the longer and more minutely we scrutinize, the more do we get to wonder at and admire. Here, truly, we are taught, in some measure, and according to the feebleness of our comprehension, to appreciate the reality of the attributes of Infinite Power, co-operating with Infinite Goodness and Wisdom. I believe most of us are now disposed to agree with that keen-witted thinker of a former age, Sir Thomas Brown, when he says, "in the most imperfect creatures, and such as were not preserved in the ark, but having their seeds and principles in the womb of nature, are everywhere where the power of the sun is,—in these is the wisdom of God's hand discovered; out of this rank Solomon chose the object of his admiration; indeed, what reason may not go to school to the wisdom of bees, ants, and spiders? What wise hand teacheth them to do what reason cannot teach us? Ruder heads stand amazed at those prodigious pieces of nature, whales, elephants, and camels; these, I confess, are the colossus and majestic pieces of her hand; but in those narrow engines there is more curious mathematics, and the civility of those little citizens more neatly set forth the wisdom of their Maker." The extensive use of the microscope in modern times enables us most cordially to homologate the sentiments of Brown, and that with a degree of intelligence which he could not, with all his sagacity, have attained to. What Brown and his predecessors imagined, we see clearly; so that the merest tyro in the observation of nature now starts from a vantage ground which in former days was reached by but a few of the wisest of men. And assuredly, the results of the labours of the last century, in the course of which natural history has immensely extended its domain, tend to assure us that, however accurately men may retain the existing amount of natural knowledge, and however diligently they may continue their researches and observations for ages to come, there will still remain abundance of subjects for inquiry, to exercise the faculties, and to gratify the affections, even of the most remote of our descendants.

"Still seems the thought enormous? Think again:—
Experience' self shall aid thy lame belief;
Glasses (that revelation to the sight!)

Have they not led us deep in the disclose
Of fine-spun nature, exquisitely small,
And, though demonstrated, still ill-conceived?
If, then, on the reverse the mind would mount
In magnitude, what mind can mount too far,
To keep the balance, and creation poise?"—*Young.*

Thus it is that, so long as reason holds her seat, the right-hearted naturalist wearies not in his work. The longer he lives, the more he sees to admire, and the more enlarged do his ideas become of the glory of the Great Fountain of life, and light, and peace. I take the liberty of reminding you of these things, for the purpose of stirring you up to take a lively and active interest in the working of this Society, the existence and prosperity of which depend upon the combined efforts of its members to contribute each his quota to its proceedings. It appears to me that, by a few years of earnest labours, this Society may be instrumental in doing a great amount of good, the fruits of which will long endure. I now refer particularly to the influence which we (as the only active associated body of naturalists in the metropolis of Scotland) may very legitimately endeavour to bring to bear in favour of that movement now in progress, which has for its object the introduction of natural history, as an ordinary branch of elementary education, into all our schools. Forty or fifty years have elapsed since this movement began, and, doubtless, some progress has been made; but I presume that I speak the mind of most of those now present who are conversant with the subject, when I say, that there is great room for improvement in both the style and the matter of the natural-history lessons at present given in schools. Now, it appears to me that the consideration of the *what* and the *how* in this matter may very properly be taken up and discussed here. I cannot but regard this as an important subject; and I earnestly hope that some one amongst us, able to do justice to it, will bring it in a proper shape before the Society. Doubtless, it is in a great measure owing to the commercial prosperity of the nation, that there has been, of late, so great an increase in the numbers of students of natural history. Men whose affluent circumstances give them abundance of leisure and of means for the prosecution of science, begin to be wise enough to learn that the pursuit of natural history is both delightful and healthful. It is certainly not because our Government has taken science much more fully under its protection than formerly that its votaries have increased. Yet, what has been begun without the aid of Government, may in future owe much to that aid: and I feel assured that associations such as ours may do a great deal towards bringing about this. If it be shown—as you well know it can be shown—that the study of nature in a proper spirit exerts the most wholesome effects on the moral and intellectual, as well as upon the physical nature of man, may it not be confidently expected that our rulers will yet come to see the desirableness of making proper provision for the more general initiation of youth in natural science? To be in any measure instrumental in obtaining such a boon for the nation, is surely an object well worthy of the attention and best endeavours of our Society. And again, it appears likely that, not only in education, but in therapeutics, a more exact acquaintance with natural history is henceforth to be regarded as a *sine qua non*. You require not to be told that the contemplation of the objects of nature around us, in mass or superficially, is very inferior in power to minister successfully to the mind diseased, to the earnest scrutiny which science teaches. The soothing effects of the discovery of beauty, order, harmony, and fitness, are far greater and more lasting than the vague impressions derived from general views and brief glimpses of the æsthetic in nature. We accordingly find that modern medical psychologists have been led to see that, in prescribing for certain classes of their patients, it is of no small importance to advise something more specific than a walk into the country, or a visit to some fine scenery, or a ramble by the sea-side. They recommend the adoption of some particular department of natural history as a field for research; and, sending some to the mountains in search of Alpine plants; others to the woods to acquaint themselves with the habits of beetles and spiders; and yet others to the shores of the sea to gather and to observe the infinite variety of its inhabitants—they have the satisfaction of seeing, not only a restoration to health of body brought about, bnt great pleasure expressed in the discovery of new and unfailing sources of happiness. In a remarkable work, lately published by Dr. Feuchtersleben of Vienna, entitled 'The Dietetics of the Soul' (of which an English translation has just appeared), this is brought out very fully. He places the "contemplation of nature at the head of his system of mental dietetics,"—to use his own words; that is to say, that he (one of the most experienced psychologists of the day) has discovered no better means for the preservation and restoration of mental health than the study of natural history. And, doubtless, many physicians hold by the same opinion. Such considerations may perhaps have some effect in inducing you to take, if possible, a more intelligently active interest in the business of this Society, seeing that through it we may not only benefit one another, but be instrumental in doing much good to others. You are aware that we now enter upon the eighty-second session of this Society. But so far as it represents the Chirurgico-Medical Society, which existed four years prior to the institution of the Physical, we are now about eighty-six years of age. Originally founded by students of medicine, the Physical Society for a long time was composed chiefly of such. But the subjects discussed were not merely medical—the whole range of physical science was embraced. Not a few of the many eminent men who received their professional education at this University were active members. It has been a remarkable feature in the history of the Society, that it has received into its own membership several other Societies, which became amalgamated with it. Besides the Chirurgico-Medical, already mentioned, the American Physical was incorporated with it in 1795; the Hibernian Medical Society in 1799: the Chemical Society in 1803; the Natural History Society in 1812; the Didactic Society in 1813. Thus, you see, we have had many progenitors. Nevertheless (as is probably known to most of those present) in spite of these numerous accessions of tributary streams, some years ago the main stream became almost dry. A great drought there was, so that the channel was laid bare. It is now four years since it was revived, chiefly through the exertions of Professor Fleming, in the hope that it might be made a sufficiently attractive point of union for the working naturalists of this city. And that hope has not been disappointed. Almost all who love the study of nature are either with us, or friendly to our position; and the proceedings of the last three or four sessions have been sufficient to prove the growing interest felt in the object of our meetings. During last session, there were twenty-seven papers and communications produced at the eight meetings; and you are well aware that some of these were of great interest and importance. Allow me, in conclusion, to advert to the good examples of earnest diligence as naturalists, which were set before us by those distinguished men who have been removed from amongst us by death within the last year or two. I refer to the late Sir John Graham

Dalyell, Dr. Patrick Neill, and Professor M'Gillivray of Aberdeen, each of whom has left a blank not soon to be filled up. Scotland has had few, if any, such accomplished naturalists. It well becomes this Society affectionately and respectfully to cherish the memory of these excellent men. Sir John Dalyell was appointed first President after the revival of the Society; and although his bodily infirmities prevented him from attending our meetings, we received many proofs of his interest in us, and of his constant desire to promote our object. Of the singleness of aim, indomitable perseverance, profound sagacity, and wonderful success with which Sir John, throughout the course of his long life, gave his days and nights to the searching out of the most obscure parts of the great plan of creation, we may be thankful that so admirable and valuable a monument is preserved to us, as appears in his 'History of Rare and Remarkable Animals of Scotland,' the completion of the publication of which has been entrusted to our distinguished associate Dr. Fleming. To go through that wonderful work is, indeed, to sit at the feet of a great master, in whom we rejoice to see not only an extraordinary amount of knowledge, but a deep veneration for Him whose works he would attempt to unravel. We shall all expect with interest a full biography of Sir John from Dr. Fleming, when he shall have completed the publication of his posthumous works. Dr. Neill also was a member of this Society. He entered it from the Natural History Society in 1812. Few men of his day knew so much from personal observation of the Zoology and Botany of Scotland, as did Dr. Neill. Those who knew him personally (and these were indeed many) will long remember his modesty, simplicity, and acuteness as an observer, and his kindness, steadfastness, and sincerity as a friend. His public spirit was ever active; and to it we are indebted for the institution of the Caledonian Horticultural Society, and of the Zoological Gardens, as well as for abundant and self-denying labours in connexion with many other scientific and charitable institutions. His wondrous little treasury of plants and animals at Canonmills was indeed an earthly paradise to those who could appreciate the moral excellencies of the possessor, as well as the riches of the spot. Professor M'Gillivray was a native of the Hebrides, but resided in Edinburgh for many years before his removal to the Chair of Natural History in Aberdeen. Here he filled in succession, and with great credit, the offices of Assistant-Keeper of the College Museum, and of Conservator of the Museum of the Royal College of Surgeons. He was a most laborious student and exact observer. His published works prove how well acquainted he was with a large range of subjects in natural history. Doubtless, had his life been prolonged, he would have done much to extend the science and to foster a taste for the study of natural history."

Mr. Hugh Miller then read a paper on the ancient Grauwacke Rocks of Scotland, with a historical sketch of the progress of geologic discovery among them during the last sixty years, and a brief description of what is at present known regarding their place, character, and organisms. The paper was illustrated with a fine collection of Scoto-Silurian fossils. On the motion of Professor Fleming, the thanks of the Society were unanimously voted to Mr. Miller for his valuable and interesting paper.

Saturday, *December* 11, 1852.—MR. HUGH MILLER, President, in the chair.

The following donations to the library were laid on the table, and thanks voted to their respective donors:—'The Transactions of the China Branch of the Royal Asiatic Society' for 1848—50; per Dr. Coldstream. 'Dr. Johnstone's Flora of Berwick-upon-Tweed;' from the author, per R. F. Logan, Esq.

The following communications were read:—

I. Notice of the Bridled Guillemot (*Uria lachrymans*, Temm.), shot near North Berwick; by John Alexander Smith, M.D. The bridled or ringed guillemot, Dr. Smith said, derived its name, and apparently its principal distinctive character, from a ring of white feathers which encircles its eyes, and from which a white band extends backwards, in this specimen, for an inch and a half along the usual dividing line which exists here in the guillemot. On a closer comparison, however, between the Uria troile, *Linn.*, and this bird, we find the bill of the U. lachrymans to be smaller, and more slender, and the bird to be apparently altogether rather less in size. These distinctions, however, he observed, are by no means well marked or decided in their character. Dr. Smith stated that this U. lachrymans was one of three specimens which were shot off North Berwick, in the end of June last year, each being along with a flock of the common guillemot; and that Mr. John Richardson, Pencaitland (by whose kindness he was enabled to exhibit it), informed him they generally occurred in company with small flocks of the common species, and only in very small numbers; and that he never saw a flock of them by themselves: he stated also, that they seemed very averse to take wing, always remaining on the water after the common guillemot takes flight, and when fired at they generally attempted to escape by diving frequently, and swimming a great distance under water. Mr. Richardson has been in the habit of shooting over the Firth near North Berwick, more or less regularly, from March to September, for the last fifteen or twenty years; and although he has shot great numbers of the U. troile, it was only within the last two or three years that he observed the difference between it and the U. lachrymans, and since that time he has occasionally noticed the latter bird during all these various months. Mr. Gould states that the U. lachrymans occurs on various parts of the coast of Britain, particularly those of Wales. Mr. Yarrell mentions its occurrence on the coasts of Yorkshire and Durham. The late Professor M'Gillivray refers, in his British Birds, to a specimen shot in the Firth of Forth in April, 1824, and another, a young bird, shot in winter with the same distinguishing white ring round the eye: he says he always looked upon them as mere varieties of the U. troile, and thereupon paid little attention to them; and he considers the question of its being a distinct species as still very doubtful. Sir W. Jardine, in the 'Naturalist's Library,' says, "We have never had the good fortune to meet the bridled guillemot in Scotland, nor do the fishermen, or inhabitants near the trading places,—almost always very correct in their distinctions of the creatures frequenting their vicinity,—know it." The permanency of the white markings already alluded to, both in winter and summer, in male and female, and apparently in young as well as old birds; and the statements of naturalists of its breeding places being distinct from the U. troile, as at the island of Grimsey, north of Iceland, visited by Mr. Procter, as well as the fact stated by him, that the inhabitants always set apart these birds, and selected their eggs as distinct from the common guillemot; all give an additional interest to any details of its habits, and tend to strengthen the belief of its being possibly a distinct species. Dr. Smith also stated, that, from the careless way in which some of our sportsmen noticed the birds which they shot, he was almost inclined to think the young of the razorbill (*Alca torda*), which has a white line running from the eye forwards to the bill, may have been mistaken for this rarer bird; and, by rather a strange oversight, he found this white marking of the Alca torda described as belonging to the U. lachrymans, in the notes added to the 8vo edition of Cuvier's 'Animal Kingdom,' recently published by Orr & Co., London. The U. lachrymans, Dr. Smith stated, seemed to be by no means a common bird in this district, or it had been strangely overlooked; as, with the exception of Mr. Small, George Street, who prepared this specimen, none of our bird-stuffers ever saw an individual which had been captured in our neighbouring seas.

Mr. Logan remarked that he had brought with him a very interesting paper on this bird, published by Mr. John Wolley, which was diametrically opposed to the opinions of Mr. Procter, and stating that he believed the bird to be merely the young of the U. troile, although in this case the changes in the white ring would be the very reverse of what takes place in the Alca torda, in which the white line on the head becomes more distinct as the bird approaches maturity. Still it bred in the same localities as the U. troile, and seemed in all other respects exactly to correspond. Dr. Fleming doubted the propriety of a white ring or streak being looked upon as a distinctive character, considering how much the black and white colours vary in the winter and summer plumage of many of these birds. He stated he had always been in the habit of looking upon it as a mere variety of the U. troile.

II. The Rev. John Fleming, D.D., next exhibited a recent specimen of the little auk, or common rotche (*Alca alle*, Linn.), in its winter plumage, which had been kindly sent to him by the Rev. Mr. Cunningham of Prestonpans, near which place it had been taken in an exhausted state by some fishermen. Dr. John Alexander Smith mentioned that another specimen of this bird had been shot in the Firth off Dalmeny Park during the severe frosty weather we had about a month ago.

III. A number of interesting specimens of snakes, insects, &c., which had been collected by the Rev. H. M. Waddell, at the Mission of Old Calabar, was next exhibited. Mr. Waddell had for some time been stationed there as a missionary for the United Presbyterian Church, and on his recent return to this country he had brought with him the specimens in question. These he had liberally divided among some of the naturalists in this city, in order that they might be examined, identified, and exhibited to the Society.

Among the objects shown, Mr. James Cunningham, W. S. (on behalf of Dr. Coldstream, who was unavoidably absent), exhibited a specimen of the very curious Arachnidan Phrynus lunatus of Olivier, Latreille, &c. It belongs to the tribe of Solifugæ (*Tarentulidæ*) and is supposed to be very poisonous. Mr. Waddell stated that this was the only specimen of the kind he had ever met with, and that it had been found in an outhouse among some lumber.

Dr. Lowe next reported on one or two species of Myriapoda—one of which was a very large species of Iulus, in which, from its size, the peculiar characters of the genus were very distinctly seen. In connexion with this he gave some very interesting information as to the habits of one of the British species which he had himself watched.

Mr. Andrew Murray, W. S., to whom the beetles had mostly fallen, exhibited them, and reported that the principal species were Augosoma Centaurus, *Fab.*, male and female, Oryctes Monoceros, *Oliv.*, and Diplognatha Gagates, *Fab.* There was also a species of Oryctes, which was probably undescribed, and which at least was not in the collection of the British Museum, to which he had sent it for identification. The beetles shown were all of large size and sombre colours.

Mr. R. F. Logan described eight of the insects; two gigantic spiders, one of them belonging to the family Mygalidæ; and, after alluding to the fabled bird-catching propensities of the genus Mygale, completely disproved by their habits, read an extract from the 'Proceedings of the Entomological Society,' which went very far to prove that there actually exists in India a bird-catching spider, little inferior in dimensions to the Mygale Avicularia, but belonging to another division of the order, and probably a gigantic species of Epeira. Among the other insects was a beautiful Mantis, and a Coleopterous Lamellicorn larva, three inches in length, and one in breadth, of a dark olive colour, clothed anteriorly with reddish brown hairs, and with very distinct black spiracles.

It was then mentioned that the snakes were in the course of being examined by Professor Traill, and would probably form the subject of a future communication.

The cordial thanks of the Society were given to Mr. Waddell for the interest he thus exhibited in the promotion of science, and for the kind and handsome manner in which he had presented his collection to the members.

IV. A variety of living land-shells were then shown. They had been collected by Dr. Knapp last summer, during an excursion in Switzerland, and he had brought them home and kept them since alive in the glass globe in which they were exhibited. Dr. Greville enumerated the species which were shown, and gave some interesting details relating to them. The thanks of the Society were voted to Dr. Knapp for the exhibition.

V. A serpent from the Amatola, Kaffirland, and supposed to be identical with the Egyptian cobra or asp, was exhibited through the kindness of the Rev. A. Somerville, and excited much interest, the fangs being fully displayed, and having the poison condensed around their orifices.

VI. An interesting paper was then read on the Injurious Effects of Cedar-wood Drawers, by Professor Fleming.

VII. Note on the Helix aspersa, by Mr. Hugh Miller.

In a conversation which followed the reading of Dr. Fleming's paper, for which he received the thanks of the Society, it was stated by Mr. John Stewart, in confirmation of the view taken regarding the pernicious effects of cedar-wood on natural history specimens, and works of art and vertu, that, having committed to the keeping of a cedar-wood drawer a set of delicate photographs, he found, on examining them after the lapse of some time, that they had almost all suffered, and that from most of them the images were wholly effaced.

At the conclusion of the meeting, James Wilson, Esq., Woodville; William Brown, Esq., F.R.C.S.E., Dublin Street; and John William Hadden, Esq., from Van Dieman's Land; were elected members of the Society; and the following gentlemen were unanimously chosen office-bearers for the ensuing year:—

Presidents.—John Coldstream, Esq., M.D., F.R.C.P.; Hugh Miller, Esq.; Rev. John Fleming, D.D., Professor of Natural Science, New College, Edinburgh.

Council.—James Cunningham, Esq., W. S.; Robert K. Greville, LL.D.; Robert Chambers, Esq.; William H. Lowe, Esq., M.D.; Charles Maclaren, Esq.; and Andrew Murray, Esq., W. S.

Treasurer.—William Oliphant, Esq.

Secretary.—John Alexander Smith, Esq., M.D.

Assistant Secretary.—George Lawson, Esq.

Honorary Librarian.—Robert F. Logan, Esq.

Library Committee.—William Rhind, Esq.; John Murray, Esq., M.D.; and Patrick Dalmahoy, Esq., W.S.

Proceedings of the Zoological Society.

Tuesday, January 11, 1853. — Dr. Gray, Vice-President, in the chair.

Mr. Waterhouse described a new species of rodent from South America, remarkable for having a very short tail, and strong fore-feet, furnished with large and nearly straight claws. It was from the province of Mendoza, having recently been sent by Mr. Bridges, after whom it was named by Mr. Waterhouse, Hesperomys Bridgesii.

M. G. P. Deshayes described thirty-seven new species of shells from the collection of Mr. Cuming, including several very interesting types.

Dr. Gray described a new salamander from California, under the name of Ambystoma Californiensis; and a gigantic tortoise from the Galapagos, under the name of Testudo platycephalus. The latter species is established on a skull only.

Tuesday, January 25, 1853.—Dr. Gray, Vice-President, in the chair.

The Secretary read a letter from Mr. L. Fraser, H.M. Vice-Consul at Whidah, written from Clarence, Fernando Po, and addressed to Mr. Cuming. It contained some notice of the existence of a large Quadrumanous animal in the interior, called by the natives *Tap-par-po-har*, which is supposed by them to be a chimpanzee, but which is considered by Mr. Fraser to be most probably a Cynocephalus. Mr. Fraser has not yet succeeded in obtaining a specimen. He describes two new birds obtained in June and July last, at Fernando Po, under the names of Bubo poensis, and Buceros poensis.

M. Deshayes read a paper on the animals of Camostrea, Clementia, and Glauconome; and in the course of it he took occasion to describe fourteen new species of the genus Mactra, and two of Clementia.

Dr. Gray read a paper on the division of Stenobranchiate Gasteropodous Mollusca, in which he made use of the character afforded by the mouth, which he considers to establish the distinction of two great groups in a much more natural manner than the presence or absence of a siphon in the mantle, and to be more consistent with the habits of the animals, and much less liable to exceptions. The character upon which Dr. Gray chiefly relies, is the form, disposition, and number of the teeth on the lingual membrane. His arrangement is as follows: —

Suborder I.—Proboscidifera.
Fam. 1. Muricidæ.
2. Buccinidæ.
3. Olividæ.
4. Lamellariadæ.
5. Fasciolaridæ.
6. Volutidæ.
7. Pleurotonidæ.
8. Doliidæ.
9. Tritoniadæ.
10. Scytotypidæ.
11. Volutonidæ.
12. Naticidæ.
13. Cassididæ.
14. Scalariadæ.
15. Acteonidæ.
16. Acusidæ.
17. Pyramidellidæ.
18. Architectomidæ.

Suborder II.—Rostrifera.
Fam. 1. Cancellariædæ.
2. Conidæ.
3. Amphiperasidæ.
4. Cypræadæ.
5. Pediculariadæ.
6. Aporrhaidæ.
7. Strombidæ.

8. Phoridæ.
9. Ampullariadæ.
10. Viviparidæ.
11. Rissoellidæ.
12. Littorinidæ.
13. Planaxidæ.
14. Melaniadæ.
15. Vermetidæ.
16. Vanicoridæ.
17. Valvatidæ.
18. Cæcidæ.
19. Truncatellidæ.
20. Capulidæ.
21. Calyptræidæ.

M. Deshayes made some observations upon the manner in which the animals of these groups take their prey.—*D. W. M.*

Proceedings of the Society of British Entomologists.

January 4, 1853.—Mr. Harding, President, in the chair.

The President exhibited some living specimens of Phragmatobia papyratia, bred within doors, and said he could have brought several more, as they still continued to come out of the chrysalides.

The President then addressed the Members; and having made some observations on the prosperous state of the Society, concluded with comments upon the pleasing results of entomological researches during the past year. He instanced the labours of Mr. Weaver in Scotland, whereby our cabinets have been enriched by several valuable acquisitions. In other parts of the country also many rare insects have been found in considerable abundance; among which he mentioned Agrotis lunigera, Aporophila australis, and Plusia orichalcea, besides many rare or new Micro-Lepidoptera; and he had no doubt that another year of perseverance would produce still more gratifying results. But amidst all these causes of congratulation, the President remarked that there were still many motives for sorrow. A sad loss had been experienced in the decease of one of the best and most independent writers on Entomology,—Mr. J. F. Stephens. It appeared as if every year were to be taken from us some of our best teachers. A short time since we had to deplore the loss of Mr. E. Doubleday, then of the Rev. W. Kirby; and in Scotland, Sir John Graham Dalyell, Dr. Patrick Neill, and Professor MacGillivray had recently been removed by death. But these losses should not be allowed to depress the energies of the naturalist; they should rather incite him to renewed exertions. The President was happy to say that the ranks of this Society had not been thinned by death; they nevertheless felt the temporary loss of several of their members who have gone abroad, and whose company they might again hope to enjoy, although they could not profit by their labours, the Society's cabinets being exclusively devoted to the reception of British insects.

A letter was then read from Mr. Oxley, who is in Australia, containing observations on the number of insects he had met with. He had been particularly struck with the beauty of some of the Lepidoptera, of which he said he should make a point of forming a collection.

A vote of thanks to the President and Secretary having been passed, the meeting adjourned.—*J. T. N.*

Proceedings of the Isle of Wight Philosophical and Scientific Society.

December 20, 1852.—Several new members were proposed for admission, to be balloted for at the next meeting.

Donations of numerous geological specimens were announced from C. Cramer, Esq., Rev. C. U. Barry, and C. Pearson, Esq.

Professor E. Forbes, of London, who has been for some time engaged in this locality upon the Geological Survey of Great Britain, exhibited some living specimens of remarkable Limaces, taken in the Isle of Wight, by Mr. Gibbs, including the black caricated slug (*Limax Gagates*), which had never been noticed but once before in England.

Professor Forbes then proceeded to give an account of the freshwater tertiary formations of which the greater part of the northern portion of the Isle of Wight is made. Hitherto it has been supposed by all geologists who have written upon the district, that the well-known Headon Hill, upper and lower freshwater formation, constituted most of the country to the north of the chalk range. Mr. Prestwich alone suggested that the cliffs of Hempstead, near Yarmouth, were composed of higher beds. In reality, however, the Headon-hill beds, properly so called, constitute but a very narrow strip of the island; and certain strata that rest upon them, including the limestones and marls of Bembridge, Binstead, Cowes, Gurnet Bay, Hempstead Ledge, and Sconce, form a large tract of country of an entirely different geological age, and distinguished by distinct and peculiar fossil remains. These beds have hitherto been mistaken, both by British and foreign geologists, for Headon-hill beds, and in most instances for beds at the bottom of the Headon-hill series. Above them, lies another, and equally distinct, formation, of which Hempstead Hill, and probably Parkhurst, are composed. The fossils in this highest group are also distinct. These upper tertiaries form a series of rolls, constituting the undulated country between the eastern and western extremities of the island. These rolls, dependant on lateral compression, are also to be seen, as lately observed by Mr. Bristow and Mr. Aveline, during the course of their researches, affecting the older marine tertiaries, and the chalk itself. Altogether, there is a thickness of more than 500 feet of freshwater strata, above the Headon-hill series, unrecorded in works on British geology. Osborne House stands upon a formation hitherto undefined, and not mentioned in geological manuals.

Professor Forbes proposes to divide these additional groups into three series:—1st, The St. Helen's and Nettlestone beds; 2ndly, the Bembridge beds; and 3rdly, the Hempstead-cliff beds. Full accounts of them will be published by the Geological Survey of Great Britain, under the direction of Sir Henry de la Beche, who has, during the last two years, been actively engaged in personally exploring and superintending researches in the Isle of Wight, and at whose suggestion the inquiries were made which led to the discoveries now announced. An animated discussion ensued upon the subject of Professor Forbes' communication. For this most interesting account, as well as for his courtesy, in having made this Society (established especially for scientific researches) the medium through which first to make a great fact public,—a fact so peculiarly interesting to the island,—an unanimous and hearty expression of thanks was passed to the discoverer of these new geological series.

The Society then adjourned until Monday, January 3, on which evening it was announced that Dr. Drew would favour the Society with a paper on the causes which led to the discovery of the new planets.

We are enabled to announce that Professor Forbes will, as soon as time allows, enrich the Society's museum by as complete a series as possible of fossils found in the new beds.

Proposition for the formation of a Kirby Society.

Stricklands, Stowmarket,
November 12, 1852.

Sir,

The notice in your November number (Zool. 3661) of a suggestion made by me to the Entomological Society, in reference to the publication of monographs of British insects, with coloured illustrations of each species, does not convey my meaning so clearly as I wished it to be understood.

My proposition was, to establish a Society, to be called the "Kirby Society," which should follow in the useful steps of the Palæontographical Society. The subscription should be One Guinea a-year; and according to the number of subscribers there should be a yearly issue of 'Coloured Illustrations of British Insects and their Transformations.' I would not interfere in the least with any other Society.

When the Diptera, for instance, were to be illustrated, the cost of description would be saved, as that part has already been done, and well done, by Mr. Walker: and so of any other branch in which *really good descriptions* are already to be found. Such a work as this would greatly extend a knowledge of British Entomology, as it would be supported by many who were not entomologists. I hope you will consent to receive the names of those who wish to subscribe; if not, please to insert this, and say that I will.

Yours very truly,
C. R. Bree.

To the Editor of the 'Zoologist.'

P.S.—I take the liberty of adding a few words more to my remarks upon the formation of a "Kirby Society." It has been suggested to me that it would be advisable by such a Society to illustrate the 'Insecta Britannica' now in course of publication. I think the suggestion a good one; and if Mr. Stainton's volume of Micro-Lepidoptera were illustrated in the same beautiful style as Mr. Douglas's papers on the Gracillariæ and Coleophoræ in the 'Transactions of the Entomological Society' of the past year by Mr. Wing, I have no hesitation in saying that a great advance would be made in this hitherto neglected branch of Lepidopterology. They say it would be incomplete, because very few of the larvæ are known; but this arises principally from there being comparatively so very little known of the perfect insects. How much time is now wasted in working out the designation of species from the many wretchedly imperfect works for which we have been called upon to pay so largely! The credit of the science is affected, and nothing can set it right but a noble effort to have perfect portraits of our British insects and their transformations. A vast number of British entomologists have no time for studying exotic Entomology, or working up species from Panzer or Rœslerstamm; they wish to have works that they can understand, and illustrations that are faithful portraits of what they profess to represent.

A double advantage would thus be gained. Not only would much and often valuable time be saved to the real student, so as to enable him to perfect his collections and extend his inquiries to other branches of science, but many would be attracted to the study who now, for the reasons I have hinted at, shrink from a task surrounded by almost insurmountable difficulties.—*C. R. B.; January* 12, 1853.

[I shall be most happy not only to receive the names of subscribers to such a Society, but to subscribe to it myself, and do all in my power to promote so laudable an object: at the same time I must be excused from expressing any opinion in favour of its practicability.—*E. Newman.*]

Note on a Variety of the Green Woodpecker.—An old male green woodpecker was shot during the last week in December, 1852, at Hedenham, in this county, by a gentleman, who very kindly presented it to me, which exhibits some remarkable variations from the usual colouring of this species, especially on the rump, the feathers of which (including the upper tail-coverts) are, in this specimen, all margined and tipped with a beautiful flame-coloured red, instead of with the usual edging of yellow. The feathers at the lower part of the back of the neck are also similarly tipped with red; while those on the back are pointed with the beautiful golden-yellow edgings which usually characterize the feathers of the rump; and a similar yellow pointing is to be observed on the ends of the feathers forming the three lower rows of the wing-coverts. The other parts of the plumage do not differ from ordinary specimens.—*J. H. Gurney; Easton, Norfolk, January* 24, 1853.

Diseases produced by Coccidæ on the Olive, &c. — M. Robineau Desvoidy lately proceeded to the South of France, with the view of ascertaining the cause of a malady which had long been prevalent on the above trees in that part of the country, and which it was supposed had made its appearance in the central and northern departments. This disease, called *morfée* by the Italians, and *fumagine* in the North of France, consists in a thick black crust, which covers the trunks, branches, &c. of the trees, sometimes over a considerable extent of country. The trees become arrested in their growth, languid, and barren. According to historical accounts, this disease has not appeared more than a century. It is said to have first occurred near Rome, and to have spread thence through the whole of Italy, and into France. Every year it makes fresh progress, and no means of arresting it have yet been found. The Italians are not agreed as to to whether this disease be a special malady, or merely the result of the attacks of Coccidæ. The author supports the latter opinion, stating that the disease never occurs except upon trees attacked by those insects. Of these, he says that the Coccus adonidum, a native of Senegal, attacks especially the citron and lemon trees; the Coccus hesperidum, a native of America and Africa, prefers the orange, rose-bay, and peach trees; the Coccus aonidum, a native of the Indian Archipelago, attacks the Lauraceous trees; the Coccus Oleæ commits the greatest ravages upon the olive-trees, but also attacks the oranges and a number of other trees; this is the most destructive of all. Rich, moist, well cultivated localities are most favourable to the development of these insects, and it is in such localities that they commit the greatest ravages.—*From the 'Comptes Rendus,' August* 2, 1852, *p.* 183.

[The crust should be melted, and would probably produce wax: the crust deposited by a Chinese Coccus in a similar manner on trees, produces wax of excellent quality.—*E. N.*]

Occurrence of the Apteryx at large in Wales. — A few days ago a friend from the of Anglesey was visiting me, and mentioned in the course of conversation that ne three or four years ago he shot in a marsh near our respective residences in glesey, a singular bird of the species of which he was ignorant. On my expressing ish to see it, he kindly promised to send it to me; and on its arrival, I was quite rtled with its resemblance to the New Zealand Apteryx, which I had seen in the rdens of the Zoological Society. The body of the bird measured 18 inches, the k about 5. I saw an absence alike of wings and tail: the feathers of hard rough ture, the colour being an uniform dark brown: the head round the base of the beak l the eyes thinly covered with long bristly hairs. Nothing I had ever seen bore a emblance to the creature before me, except the Apteryx; and I hastened to consult eminent ornithologist, to whom I sent a description of the bird, along with a fea- r. He assures me that it belongs to the genus Apteryx, but to which of the three own species he cannot determine, without an examination of the bird. How this ature could arrive at Anglesey seems a mystery, unless it had escaped from some ecked vessel. Perhaps some of your correspondents can suggest some solution of s difficulty: all I can do is to assure them of the fact of this bird having been found ve and shot in Anglesey, as I have related. — *Josiah Spode; Armitage, Rugeley, ffordshire, January* 28, 1853.

OCCASIONAL TWO-SHILLING NUMBERS OF THE 'ZOOLOGIST.'

The object of the replies received on this subject are faithfully represented by the lowing brief communication from Mr. W. L. H. Walcott: — "I should rejoice if u were able to publish a double number every month; that is, that the 'Zoologist' ould become a two-shilling periodical." Two dissentient opinions have been sent, t one of these is without a name, and the other is requested to be published anony- usly. Both these correspondents must be unacquainted with the nature of periodi- l literature; they lose sight of the obvious truth that I have a far better opportunity writing anonymous *pros* than they have of furnishing anonymous *cons*. An opin- n, to have any weight, *must have the responsibility of a signature*. However, so eat progress has been made with publishing the matter in hand, that the question of uble numbers may safely be adjourned *sine die*.—*E. N.*

BIRDS' EGGS.

MR. J. C. STEVENS is instructed to announce for SALE by AUCTION, at his Great Room, 38, King Street, Covent Garden, London, on iday, February 11th, 1853, the COLLECTION OF EGGS belonging to J. R. ISE, Esq., of Lincoln College, Oxford, in which will be found many very rare sorts, Eagles, Vultures, Gyr Falcons, Kites, Buzzards, Owls, Turnstones, Bustards, Lit- Auks, Phalaropes, &c. &c.

Catalogues will be forwarded on receipt of a stamped directed Envelope, enclosed Mr. J. C. Stephens, 38, King Street, Covent Garden, London.

TO BRITISH EGG-COLLECTORS AND OTHERS.

COLLECTION of EGGS belonging to a Gentleman going to India, many of them very rare, to be SOLD by AUCTION, by Mr. J. C. TEVENS, Auctioneer, 38, King Street, Covent Garden, early in February, 1853.

QUADRUPEDS, BIRDS, FISHES, REPTILES, &c.

ENTLEMEN wishing to secure the services of the first Artist in Zoology, are respectfully invited to inspect J. F. SANDERS's COLLEC- ION of SPECIMENS, acknowledged to be the most life-like ever submitted to the blic. His unique style of preserving Fish should not escape the notice of gentle- n who wish to possess Specimens worthy a place in their Collections, J. F. S. having d great experience in working for all the principal Fishing Societies in London for e last fourteen years. Charges strictly moderate.

15, Ashley Terrace, Shepherd's Walk, City Road.

CONTENTS.

Birds.—The Osprey in Surrey, *G. J. Webb, Esq.*, 3753. Occurrence of the Long-eared Owl and Fire-crested Regulus near Penzance, *Edward Hearle Rodd, Esq.*, 3753. Occurrence of the Black Redstart at Bembridge, *A. G. More, Esq.*, 3753. Note on the late Occurrence of the Blackcap Warbler, *J. H. Gurney, Esq.*, 3753. Note on the Cole Titmouse, *W. C. Hewitson, Esq.*, 3573. Supposed Occurrence of the Rufous Swallow near Penzance, *Edward Hearle Rodd, Esq.*, 3753. Swallows in November, *W. C. Hewitson, Esq.*, 3753. The Chukar Partridge, *Dr. Thomson's 'Western Himalaya and Tibet,'* 3754. Woodcock breeding in England, *William Knapp, Esq.*, 3754. Unusually large Woodcock, *Edward Hearle Rodd, Esq.*, 3754. Note on the supposed Abundance of Woodcocks in Norfolk, *Alfred Newton, Esq.*, 3754. Occurrence of the Little Auk in the City of Durham, *H. B. Tristram, Esq.*, 3755. Occurrence of the Puffin in Winter off the Isle of Wight, *A. G. More, Esq.*, 3755. Occurrence of the Sooty Tern in England, *Edwin Brown, Esq.*, 3755. Occurrence of the Fork-tailed Petrel near Penzance, *Edward Hearle Rodd, Esq.*, 3756.

Reptiles.—The Great Sea Serpent, *Lt. Col. Steele*, 3756. The Sea Serpent, *Alfred Newton, Esq.*, 3756. Note on the Yellow Boa, *Robert Coles, Esq.*, 3757.

Fishes. — On the Artificial Introduction of a Breed of Salmon into the River Swale, and a tributary Stream in Yorkshire, *John Hogg, Esq.*, 3758. Note on Gasterosteus leiurus, or probably G. trachurus, *R. Wakefield, Esq.*, 3760.

Mollusks.—Land and Fresh-water Mollusca of Oxford and its Neighbourhood, *Alfred Merle Norman, Esq.*, 3761. Discovery of Helix obvoluta in Hampshire, *Rev. W. H. Hawker*, 3764.

Crustacea.—Description of a Young Lobster measuring only nine lines, *William Thompson, Esq.*, 3765.

Arachnida.—Abstinence of a Spider, *Octavius Pickard-Cambridge, Esq.*, 3766.

Insects.—On "Robber Bees," as described by O. Pickard-Cambridge, Esq., *H. W. Newman, Esq.*, 3766. Note on Robber Bees, *R. Wakefield, Esq.*, 3769. Notice of the Habits of Myrmica domestica, *Shuck.*, *George Daniell, Esq.*, 3769. What has been done for Entomology in Scotland? *John Scott, Esq.*, 3773. Inquiry respecting certain Appendages to the Haustellum of Diurnal Lepidoptera, *Arthur R. Hogan, Esq.*, 3775. Captures of Lepidoptera in the neighbourhood of Birkenhead during the past year, *G. A. Almond, Esq.*, 3776. Notes respecting Acherontia Atropos, *J. W. Douglas, Esq.*, 3776. Occurrence of Chærocampa Celerio in Staffordshire, *R. W. Hawkins, Esq.*, 3777. Occurrence of Chrymodes Templi near Huddersfield, *Rev. J. Johnson*, 3777. Capture of Agrotis subgothica in Nottinghamshire, *Edwin Brown, Esq.*, 3777. Occurrence of Agrotis lunigera in Scotland, *R. F. Logan, Esq.*, 3777. New Locality for Eudorea lineola, and Note on the Larvæ, *Richard Shield, Esq.*, 3778. Food and Transformation of the Larva of Elachista locupletella, *John Scott, Esq.*, 3778. Economy of Crabro cetratus, *Thos. John Bold, Esq.*, 3778. Hive Bees in want of a Queen: Do Bees look out at Swarming-time for a Place to go to? *W. H. Newman, Esq.*, 3779. Note on the scarcer species of Andrena being found on the Catkins of the Willow, *W. H. L. Walcott, Esq.*, 3780. Voracity of the Larva of a Beetle, *R. H. Meade, Esq.*. 3780. Note on the Perforation of a Cistern by Anobium striatum, '*Proceedings of the Linnean Society,*' 3781.

Radiata.—List of Echinodermata hitherto met with in the Moray Firth, *Rev. George Gordon*, 3781.

Proceedings of Societies.—Entomological Society, 3785. Microscopical Society, 3786. Royal Physical Society of Edinburgh, 3788. Zoological Society, 3796. Society of British Entomologists, 3797. Isle of Wight Philosophical and Scientific Society, 3798. Proposition for the formation of a Kirby Society, 3799.

Birds.—Note on a Variety of the Green Woodpecker, *J. H. Gurney, Esq.*, 3800.

Insects.—Diseases produced by Coccidæ on the Olive, &c., '*Comptes Rendus,*' 3800.

EDWARD NEWMAN, PRINTER, DEVONSHIRE STREET, BISHOPSGATE.